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The Dental Digest

June 1929

Editor-

GEORGE WOOD CLAPP, D.D.S.

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THE DENTAL DIGEST

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THE DENTAL DIGEST

VOLUME XXXV

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Scissor-Bite Denture Technic

BY PARALLELING PLANES AND ANGLES ON THE OCCLUSAL SURFACES OF
ARTIFICIAL TEETH WITH THE INCLINATION OF THE CONDYLE PATHS

By S. K. AVERY, D.D.S., Goodland, Indiana, and B. W. AVERY, D.D.S.,
Whiting, Indiana

In the past most of the efforts in the construction of artificial dentures have been an attempt to imitate the form and principle-of-functioning of the human tooth and supporting tissues, even where this form and this principle were not factors in the esthetic appearance and might not help but might stand in the way of success of efficient denture service. The movements of the mandible and the relation of these movements to the pitch of the condyle path still remain substantially the same as they did previous to the loss of the natural teeth, and they have been successfully imitated in many of the better articulators. But is it advisable to imitate in form and principle the natural teeth, which are fixed securely in their respective positions, when we have to meet problems of mastication with an artificial appliance that is comparatively unstable, and when entirely different mechanical principles are involved, or must we not go into the field of sound mechanical and scientific principles as other lines of endeavor have?

Our ancestors faced the problem of the artificial locomotion of heavy objects, and they met it by the use of wheels, not legs. The problem of

navigation could not have been solved by the use of webbed feet. The air had to be conquered by planes, not by flapping wings. It has never been necessary for man to evolve so efficient a natural chewing machine as some of the lower animals, due to the fact that he has mechanically pulverized and cooked his food down through the ages, while, on the other hand, necessity has caused some of the lower animals to evolve wonderfully efficient arrangements of teeth and designs of masticatory surfaces. The foods of the carnivorous animals are such that they have developed a tearing and bone-cracking set of teeth which do not meet our requirements in our quest for an efficient artificial chewing machine. The herbivorous and grain-eating animals have met the requirements necessary to masticate coarse, tough and fibrous foods properly, and among them you will find the most efficient sets of teeth. From our investigations and from the specimens we have collected we find that the inclination of the occlusal planes from the buccal to the lingual is the reverse of the human tooth, the lingual cusps of the lower bicuspid and molars being higher than the buccal cusps (Fig. 1).



Fig. 1
DEER SKULL

Note that the inclination of the occlusal planes from buccal to lingual is the reverse of the human tooth, the lingual cusps of the lower posteriors being higher than the buccal cusps. Also, the efficient masticatory surfaces in the lowers are narrower than in the uppers.

As early as 1924 we felt that a departure from the complicated set-up, with compensating curve and inefficient interlocking masticating surfaces, was necessary, and that a technic that could be easily understood by the average busy dentist should be substituted, knowing full well that the majority of dentists (ourselves included), after attempting to master the present technics, were using hit-or-miss methods. We could not ignore the fact that

many dentures with a cheap, low-cusp bead of a tooth, many times ground flat on the occlusal, were in use by many patients with as little or less annoyance than the anatomical, high-cusp moulds, especially when set up in the hit-or-miss fashion of the average practitioner. Any chewing efficiency which we might obtain from the high cusps was of no avail because of the sore tissues due to lateral and protrusive interference, unless, in chewing, the patient confined himself exclusively to the "chop bite."

With these facts in mind we attempted to grind the stock teeth of anatomical moulds so that they would have plane surfaces and yet have points or cusps and sluice-ways that would cut and grind the food, but would not interfere with each other in the act of chewing. This was eventually accomplished by mounting modeling-compound bites on an anatomical articulator and working many hours in carving planes and angles in the compound until we found planes and angles that would work in harmony with the condyle paths, gliding over each other without interference and in contact at all times during the lateral and protrusive movements. This necessitated the development of an appliance, which is applicable to any adjustable articulator, to ascertain the different measurements and to set the teeth and grind in the correct planes and angles (Figs. 2-3).

These findings resulted in setting the teeth in the bicuspid and molar region, with the inclination of the occlusal surfaces from buccal to lingual, the reverse of the human tooth, the anteriors being set in the usual man-

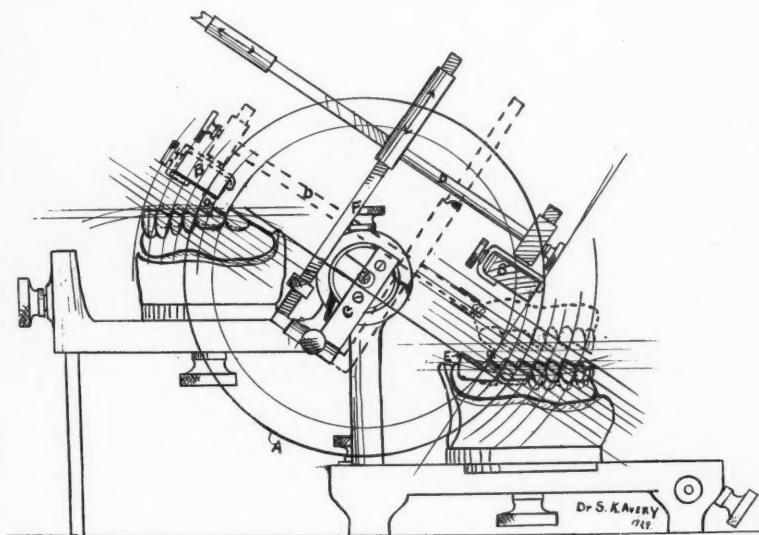


Fig. 2

An appliance applicable to any articulator. The pivot (F), upon which the arm (D) rotates, remains at right angles to the condyle path in any position, therefore the face of the stone or guide (B) is maintained and sets or grinds the posterior occlusal plane parallel with the condyle path (Line E). The anterior plane is the segment of a circle (A). The skeleton drawing shows the mechanism applied to the uppers.

ner. This inclination is the same amount above the occlusal plane as the pivot of the rotating point of the condyle on the opposite side rises as it passes up and down the condyle path (Fig. 4). The anterior plane on the occlusal of each individual tooth of the lowers and the posterior planes of the uppers incline on a line running parallel with the inclination of the condyle path (Figs. 2-3). Or they may be ground with recessively less inclination from the posterior to the anterior region, with the same condyle path setting, which will be found desirable in some cases. The opposite planes, that is, the posterior planes of the lowers and the anterior planes of the uppers, are the segment of a circle in a per-

pendicular plane around the rotating point of the condyle on the same side (Fig. 2). The fissures and angles from buccal to lingual are a segment of a circle on a horizontal plane around the rotating point of the condyle on the same side as the tooth in question (Fig. 4).

At clinics before the Indiana State Dental Association and the American Dental Association at Minneapolis, Minn., since our technic was such a departure from any previous technics, we met a few who said, "You cannot violate the laws of nature," so with the aid of a veterinarian and a taxidermist we plunged into a study of the laws of nature and found that nature had discovered, millions of years before,

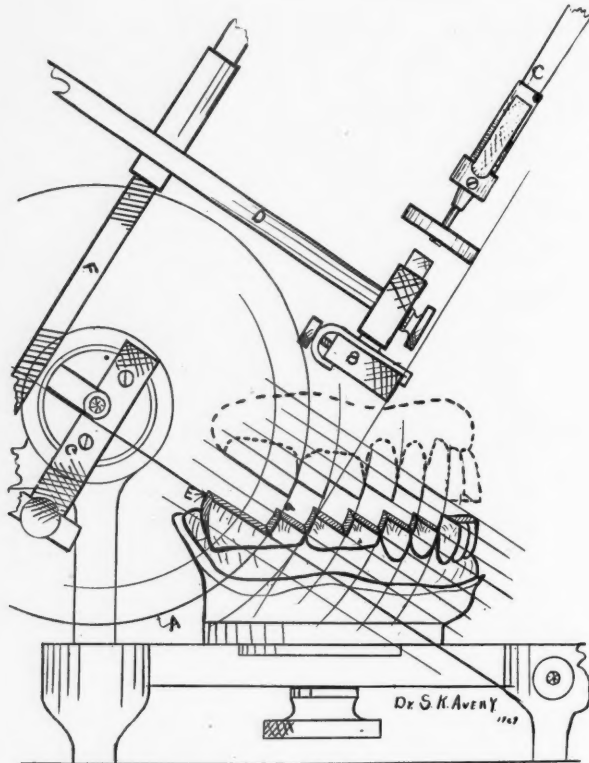


Fig. 3

Close-up of Fig. 2, showing engine handpiece attachment interchangeable with hand-stone (B).

that this was the most efficient type of chewing machine, as is seen in Fig. 1 and in other specimens we have collected.

With this revelation before us we saw that it would be quite desirable to know which type of tooth would pass through the food with the least amount of pressure, reducing it to the proper consistency in the least number of bites, and then separate with the least amount of adhesion of the occlusal surfaces or reverse pressure upon opening for the next bite. So we decided to make

a machine that would register closing pressure, opening or reverse pressure, and the number of bites necessary to reduce the food to the proper consistency (Figs. 5-6). The types of teeth are interchangeable, and we have tried to imitate some of the better types of animal teeth as well as to make composites of the more desirable features of all of them. We also mounted some of the types of artificial teeth on the market to determine their comparative value.

We have made and remade many

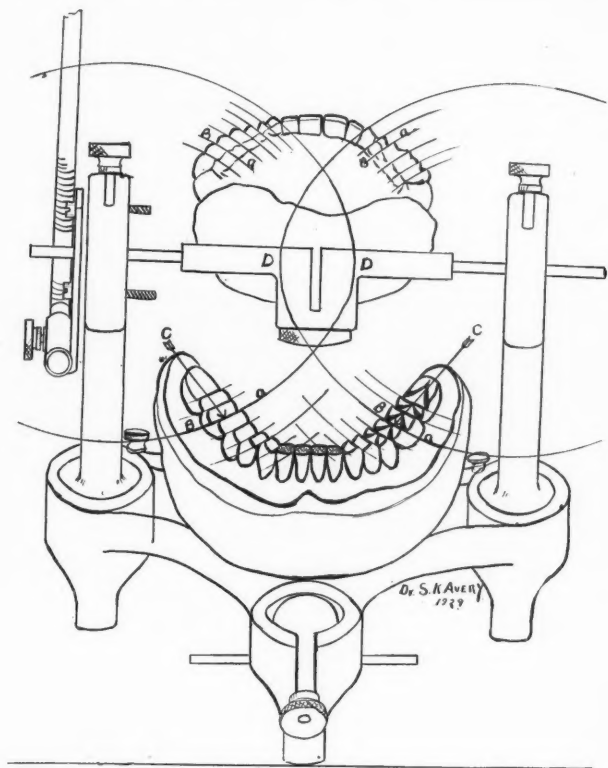


Fig. 4

The bucco-lingual pitch of the parallel planes and incising angles is the segment of a circle around the rotating point, as at B-A. The occlusal and incisal planes all incline outward, causing the direction of stress (C-C) to be toward the lingual, thus seating the denture.

parts of this testing machine and no sooner do we have them completed than we see a better way, so we hesitate to make a report as final as to the good points or defects of any individual tooth, but we have discovered a few fundamental truths. Since a denture is an unstable movable appliance and rests upon a foundation of tissue that is easily irritated, it must have the smallest possible amount of occlusal contact surface with the opposing den-

ture that is consistent with proper mastication in a reasonable number of bites. It must not have pits. Fissures or sluice-ways should be broad and lead to the buccal and lingual with an increasing amount of width and depth as they approach the point of food exit. All flat, broad occlusal surfaces or planes should be broken by fissures of this type (Fig. 7, at A). All fissures and planes should be glazed. The occlusal surfaces from buccal to lingual

on the lower denture should be narrower than those on the upper (Fig. 7, at B).

When one denture comes in contact with the other, each tooth should first present a shearing edge to the other, not a surface, as shearing registers less pressure than any other means of separation and takes place while the

interference at any point, only smooth plane surfaces moving over each other in perfect alignment to the muscle stress for each movement (Fig. 8, at A, B, C).

The small occlusal contact surface, with a lack of food-packing pits and with large, glazed sluice-ways with easy food exits, breaking up the oc-

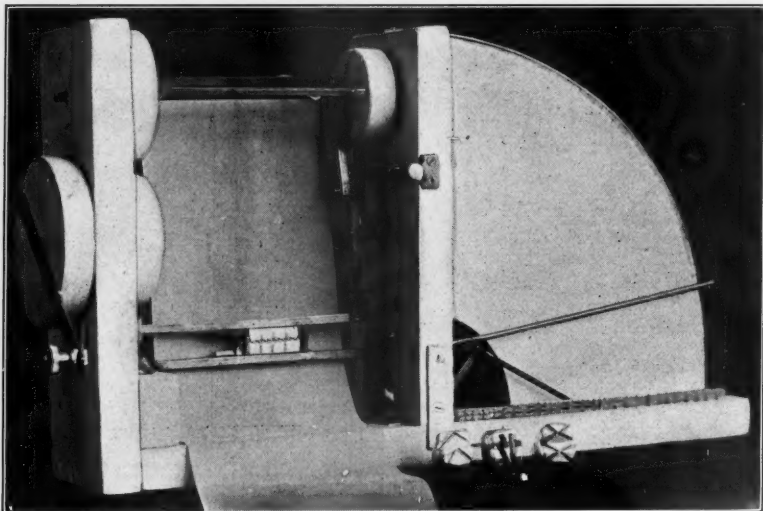


Fig. 5

Our first attempt at a testing machine. The loose end of rubber dam fastens in near the side of the rocker arm above and acts as a buccinator muscle to keep the food between the teeth, which are interchangeable, as you will note by the various types arranged in a row beneath the scale. The large models show various occlusal surfaces that we thought might be efficient. We soon discovered that the decreased adhesion of the occlusal surfaces or reverse pressure upon opening was as important as a low closing pressure, therefore our second testing machine (Fig. 6).

dentures are at their most unstable point in the act of closing (Fig. 7, at C). Further closing brings the free clearing surfaces together upon the food, which has already been sheared into sections, and the final lateral motion grinds it and forces it out through the sluice-ways. Last but not least, there is no lateral nor protrusive

clusal planes into smaller contact surfaces, decidedly decreases the necessary closing pressure, which in turn decreases the pressure on the soft tissues, minimizing displacement and soreness. The small occlusal contact surfaces broken up by large, free, cleaning sluice-ways decrease the adhesion of the occlusal surfaces or

reverse pressure upon opening the jaws and minimize the displacement or lifting of the lower denture especially, with the resultant ingress of food under the periphery and the inevitable gum irritation during the following closing bite. The desirability of the small occlusal surface broken by sluice-ways can be demonstrated. If we were to

ing and opening pressure would be decreased decidedly.

The major requirements for the successful replacement of the natural teeth with artificial substitutes, in order of importance to the patient, are comfort, esthetics and efficiency or service. No doubt comfort is the outstanding requirement, and, given a good to fair

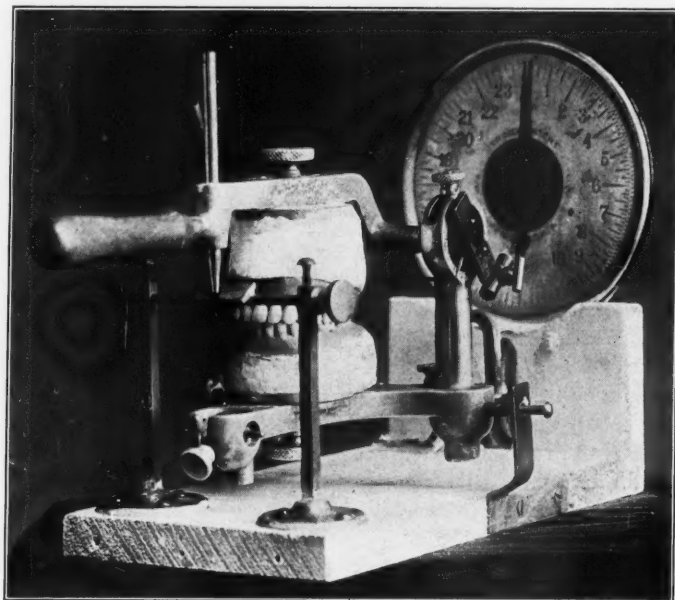


Fig. 6

By using standardized wax sheets or other material of the same consistency for each test the closing pressure is registered on the dial, clockwise, and the adhesion of the occlusal surfaces or reverse pressure upon opening is registered counter-clockwise. We hope in the future to refine a machine of this type so as to give very accurate results.

attempt to force two flat surfaces of glass together with food between them, and if we did finally succeed by a great amount of pressure, separation or reverse pressure would register even greater. But if we were to cut a means of free exit (polished grooves of increasing width and depth), the clos-

impression, we have met this requirement in the foregoing specifications by decreasing the pressure required to force the teeth through the bolus of food for proper mastication, the elimination of lateral and protrusive interference and decreased adhesion of occlusal surfaces or reverse pressure

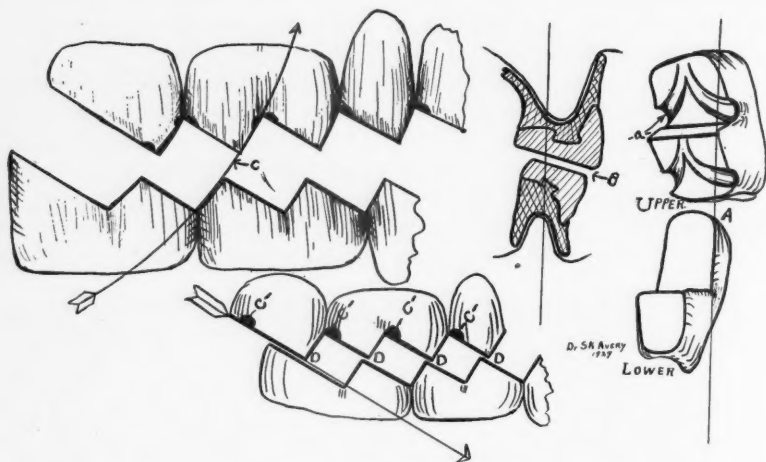


Fig. 7

A composite tooth form showing shearing angles (C and D) and detail of masticatory surfaces (A and B).

upon opening, all of which contributes to lessen displacement and consequent gum irritation. The esthetic requirements are met by the six anterior teeth above and below, which are imitations of the natural teeth as heretofore. The buccal of the bicuspid is the same in appearance as the natural bicuspid, and the set-up can be arranged to meet the requirements of the case in hand. To the average denture patient efficiency is more or less an abstract term, for as a rule he has been partly edentulous for some time and has no standard of comparison with either natural or artificial teeth, but our specifications meet the requirements of an efficient tooth by remaining in contact at all points at all times during lateral and protrusive movements. The food is first incised over all of the chewing surfaces, followed by grinding, and at the same time the surfaces are freed from food for each subsequent bite, all

of which is accomplished with less pressure and consequent displacement.

The impression may be taken by any of the many good technics now in use. Casts may be obtained with the stone or plaster that has given the best results in the hands of each individual dentist. The bites are built upon the casts with wax in the usual manner. The bites may be adjusted in the mouth and centric relation determined by the most satisfactory means at your command, and the inclination of the condyle paths may be determined by the use of wax or other heel bites in the protrusive position. Bites may be transferred to the articulator by the use of the ordinary face bow, but we prefer to use a special face bow (Fig. 9), which registers the condyle path on a cardboard (Fig. 9, at A) attached firmly in the region of each condyle by head gear (Fig. 9, at B), which gives positive proof that the bites are in

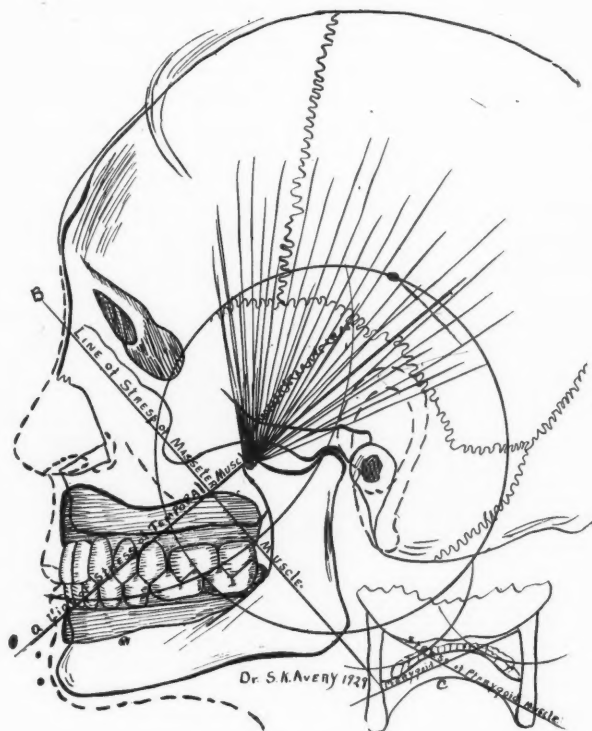


Fig. 8

Occlusal planes and incising angles of artificial dentures in relation to the lines of muscle stress. Retrusive force at A. Closing force at B. Lateral force at C.

centric relation, and that the condyle inclinations are correct. (This face bow is very similar to the one used by Dr. Gysi in his extra-oral method.)

The casts should be mounted on any of the many good adjustable articulators, any of which can be fitted with the setting-up and grinding attachment. After mounting, the inclination of the condyle paths is adjusted by the use of the heel bites or by the card used with the special or other face bow, which eliminates guesswork, but this is not absolutely necessary to the technic

if these measurements can be accurately ascertained by some other means.

In the setting-up and grinding attachment, as shown in Figs. 2, 3, and 10, you will note that the mechanism can be attached to the adjustable condyles of any adjustable articulator and rotates with it. This maintains the face of the setting plane-guide, the flat stone (Figs. 2-3, at A and B, and 10) or the face of a stone in the handpiece (Fig. 3, at C), all parallel with the inclination of the condyle paths.

After setting the condyle inclination

on the articulator, which automatically sets the plane-guide at the same angle, the lateral inclination or inclination from buccal to lingual is determined by the amount that the pivot of the upper rotating arm (Fig. 4, at D) rises in passing up the inclination of the condyle on the opposite side (Fig. 4, at A).

After adjustments are made, using

plane of the condyle path, by means of the hand-stone or the stone in the handpiece (Figs. 2, 3, 9, at B and C). As a result the distal plane will be ground as the segment of a circle around the rotating point of the condyle, so that the acute angles, when the teeth come together, will have a shearing action (Figs. 7, at C). The lower

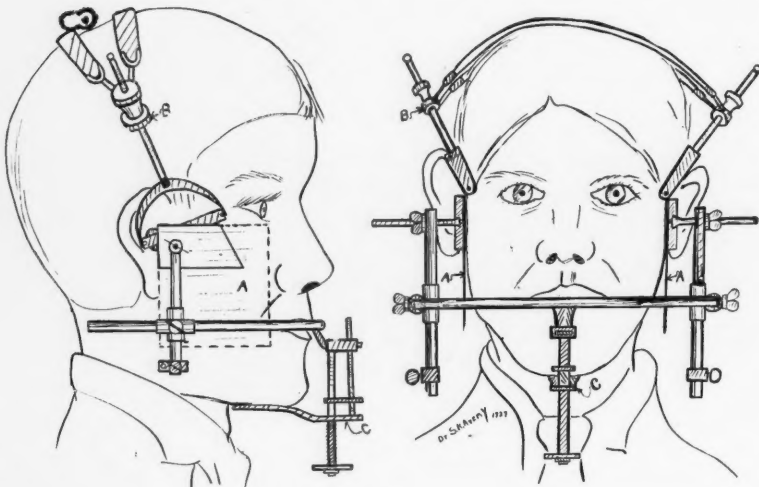


Fig. 9

Special face bow with chin clamp (C), which holds the lower bite firmly in position, and head gear (B) for holding condyle path record card (A).

any make of tooth you prefer, set the six upper anterior teeth in the usual manner and then the six lower anteriors. Next set the lower bicuspid and molars by resting the plane-guide against their occlusal surfaces and adjusting each until the mesial plane of the cusp is parallel with the longitudinal plane of the plane-guide. With the set-up of the lowers finished on the one side, we now grind landmarks of occlusion on the various mesial planes parallel with the

anteriors are ground in like manner on the same plane as the mesial of the posteriors. The mechanism is now reversed to set up and grind the opposite bicuspid and molars. Then set the upper bicuspid and molars to occlude with the lowers. The anteriors are left slightly open to allow for grinding of the posteriors. The uppers are readily ground by means of carbon paper to fit the lowers, and a final adjustment is obtained by the use of carborundum;

or the mechanism may be reversed and the uppers ground with the articulator open and resting on the guide pin with the occlusal plane parallel with that of the lower plane (Fig. 2, at A).

In case special teeth are prepared by grinding and reglazing in the porcelain furnace according to specifications for an efficient tooth as shown in Fig. 7, at A and B, the technic of setting

in the same position, against the mesial or long plane of the tooth and pressing it into the heated wax.

We wish to point out the fact that a compensating curve is not necessary, although it may be used. In fact, any irregularity of set-up does not matter, so long as the mesial plane is parallel with the condyle path and the lateral plane is at the proper pitch (Figs. 2-3,

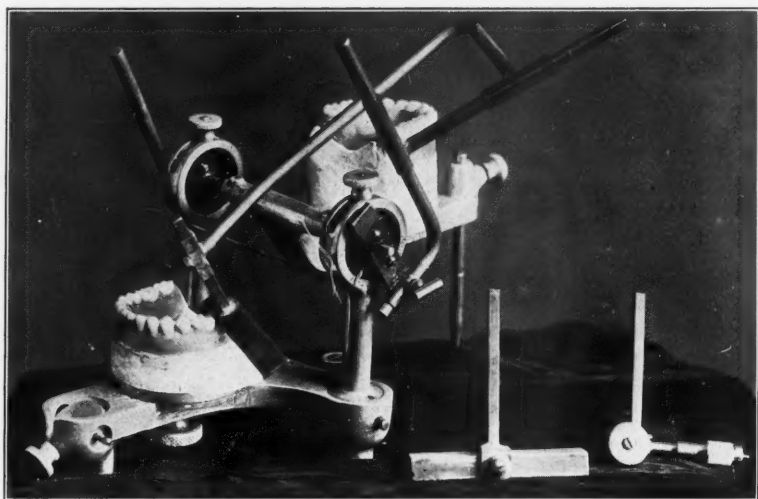


Fig. 10

Photograph of mechanism in relation to articulator and artificial dentures. Note how easy it is to obtain accuracy. By resting the face of the plane-guide against the long anterior plane of the composite scissor-bite tooth it can be forced into the wax parallel with the condyle path. The stone and handpiece at the right are interchangeable with plane-guide and are used on cases where teeth of ordinary type are used.

up, as you can readily see, is decidedly simplified, eliminates guesswork and is almost "fool-proof." With these, all of the upper teeth may be set up first, followed by the lower bicuspids, molars and anteriors in the usual manner, the teeth being forced into the wax bite-plates to their proper position by placing the face of the stone or plane-guide (Figs. 2-3, at B and A), which is held

at E; Fig. 4, B-A). We also wish to point out, as a matter of interest, that the proper angles for setting teeth with the compensating curve and lingual inclination of the lowers, as now in use, can be obtained by reversing the inclination of the plane-guide (Figs. 2-3, at B), causing the lower to incline to the lingual at the proper angle.

The advantages of the new type of

teeth and set-up are many. On the more unstable of the two dentures, the lower, the occlusal planes incline to the buccal (Fig. 4, B-A), making the line of force toward the lingual (Fig. 4, C-C). Instead of displacing or lifting the opposite side as in the old type of set-up, the denture is more firmly seated with each bite. The anterior and posterior teeth are working on the same plane, all inclining outward (Fig. 4). In the former method of set-up the anterior plane inclined outward and the posterior planes inclined inward, causing cusp interference where the planes reverse. The anteriors act as a guide-plane similar to the guide pin of an articulator. The molars as well as the anteriors have an incising or shearing action (Fig. 7, at C), an action which requires a minimum amount of force, followed by a grinding of each individual section of food previously divided by shearing. None the less important, all of the teeth remain in contact at all times during lateral and protrusive movements (Fig. 7, at D-D-D-D).

The fact that the lower molars and bicuspid are narrower than the ordinary teeth (about five-eighths the width of the uppers) allows them to be set well in over the ridge and yet give sufficient room for the tongue, and it

also makes it possible to bring the uppers well over the upper ridge. With this narrowing of the lowers we decrease the pressure required to force the teeth through the food. All of this increases the efficiency without decreasing the comfort to the patient. And one of the main points not to be overlooked, and to our minds a great advantage, is the fact that with this technic we have taken the guess-work out of full denture construction, because for the average busy dentist there is to be found a simple guide to follow in every step to be taken.

You can readily see that the foregoing mechanism and technic have been evolved or unfolded along sound mechanical and scientific principles. We have developed the various ideas separately and then by comparison fought out our differences until we have reached some definite conclusion. Clinical experience and criticism have been our greatest asset in an effort to reach the ultimate truth, as they have goaded us on to prove the soundness or falsity of our theories. We do not claim to have reached the ultimate truth in its entirety, and we hope that we shall never become so self-satisfied as to feel that we have. We invite criticism to lead us into investigations of a constructive nature.



Treatment of Tissues Supporting the Teeth*

By THOMAS P. McNULTY, D.D.S., New York, N. Y.

There are two reasons for accepting an invitation to talk to you tonight. The first is that I may learn something worth while from you, and the second is that I may get you to think more earnestly about the things you already know. Dining and talking with your officers and members have given me much food for thought, hence the meeting is already a success, so far as I am concerned. Regarding the second reason—it is not an easy thing to think and to think constructively. It is much easier to let others do it for us—and it takes much less courage—but this never gets us anywhere.

You were prompted to come here tonight expecting something new, but truth never changes. Our acquaintance with truth is the only thing subject to change. Now, before we get down to the topic which we are to study together for a short time, I want to say a word about Vincent's angina. Do not run away from this disease, for there is no condition whose treatment will earn you so much gratitude as the relief you can so quickly give a patient suffering from this type of infection. Of course it is well and wise to have a smear taken and a reading made, even though you know beforehand just what you are handling.

No doubt the method which I use is quite out of harmony with your

teaching and practice, but it accomplishes results, and results are what we are after. Go over the entire parts involved at the first sitting, using a delicate, sharp instrument, and remove the sloughing tissue. Do it gently, of course, and you will release a large amount of blood; then use some simple, non-irritating agent like 10%-15% argyrol. See your patient again the following day, and the greeting will be, "Oh! I am so much better!" Why? Well, because you have done much to restore normal circulation, and that means improvement. Many times I use nothing more than the above-mentioned agent, having the patient use at home a saturated solution of sodium perborate. Do not discharge the patient too soon, for one of the characteristics of this disease is that it breaks out again when apparently cured. Protect your patient from such a possibility and take no chances until the infection has entirely disappeared. This condition we have been discussing is more or less acute and hence is brought to your attention by the patient.

That is not often true of pyorrhea. During this discourse we shall refer to this condition as pyorrhea rather than by the newer term *periodontoclasia*—a term with which we are less familiar. It may be of long standing before the patient is aware of trouble, and it too often exists before the dentist is conscious of what is or has been going on for a long time. After studying this

* Resumé of a talk given before the Hudson County Dental Society, Jersey City, N. J., April, 1928.

disease for over twenty-five years I am going to make some statements that may be new to some and possibly to many of you who are present.

In the first place, there is much confusion over conditions commonly but improperly termed *pyorrhea*. One of these conditions is *pyorrhea*, and the other is not, though resembling it in some respects. *Pyorrhea* is caused by a local irritant of some sort, is cured when this irritant is removed, and stays cured in its absence. The other condition is the result or reflection of some systemic disturbance and improves with local treatment, but quickly returns in the absence of proper systemic adjustment.

Anything that disturbs the normal supply of blood to a part disturbs the health of that part to some degree. In order to treat pathologic conditions, one must first know the tissues in a state of normality or health, and, knowing the color of healthy tissues, one readily recognizes disease or a state that is not health. The color is one of the first signs, for, once the capillaries lose their power to contract from long-persisting irritants, the blood supply becomes stagnant and shuts off the nutrition to the tissues, and then the process of destruction begins.

After discovering that the tissues are not normal, make a thorough examination and never under any circumstances complete an examination without x-rays. While this modern aid is by no means infallible, it is so valuable that it is unwise to proceed without it. X-rays not only help you to make the diagnosis, but are a part of your records. When all the facts have been obtained, they should be placed before the patient,

never in such a way as to arouse fear but only as a means to secure cooperation and protection from further trouble. As relatively few patients who need advice, treatment and instruction ever get to a man who is doing this work exclusively, either you men who are in the front-line trenches are going to render this service or for many it is never going to be done.

Now let us consider this matter very seriously and learn that, while it is hard, it is by no means impossible of accomplishment. There is no part of the service which you are called on to render humanity which will be more beneficial to them and more satisfactory to you, because protecting patients from the need of restorations is the very heart of dentistry. Let us get right down to business and study how this work can be done, for I am tired of either listening to or reading papers written by men whose chief aim seems to be to use a lot of beautiful English and disclose nothing that is in any way useful to the man or woman who is really in earnest and anxious to learn how to render this service for which the public is so insistently clamoring.

The core of the problem is to learn how to remove the obstacles that nature unassisted cannot surmount. We call this thing disease because it is a departure from ease or normality, and we must remember that man does not cure disease. Only nature with our assistance can do that, but by our care and skill we may remove those obstacles whose presence causes the disturbed circulation or stagnant blood supply in these parts, and when this is thoroughly done, and only then, will the blood supply become

normal and the tissues return to a state of health. The glow of satisfaction that comes to one who is instrumental in assisting nature to bring about this change is something never to be forgotten. We begin to see a change in twenty-four hours. This improvement is noted first by the change in the color of the tissues. Do not make the error of attempting too much at once, and do not be discouraged if at first the little you have done does not produce results that please you.

Take only a quarter of the mouth at a sitting and go over it thoroughly, not only removing the foreign matter from every tooth surface but at the same time curetting all necrotic surfaces in contact with these foreign substances. When this is done, the operator and patient have had enough for that period.

If, for example, the lower left has been done first, at the second sitting do the upper left, and never do more than a quarter of the mouth at a time until you have started to go over the mouth the second time. If you have done your work reasonably well at the four previous sittings, you can now do the upper and lower left at one sitting.

I have found that at the end of the fourth sitting, if I go over and check the harmonious relation of the teeth, I have much less to do in adjusting the bite than if I had attempted this before any curetting was done. The improvement after four sittings on four consecutive days is often so marked that very little attention is needed to bring the teeth into a happy relation when in function.

The destruction and loss of tissue surrounding the teeth often make the

movement of the teeth possible, and this so-much-talked-of fad of traumatic occlusion is thereby one of the effects rather than the cause.

After this condition is brought about and the teeth are permitted to migrate, traumatic occlusion becomes one of the contributing factors. If the first four appointments for curettement have not drawn these teeth back into their proper position and there is still irritation caused by function, use the next appointment to test and adjust the occlusion very gently. The mark of the greatest skill in doing this phase of the work by grinding is that one not thoroughly versed in this kind of service would never recognize that a stone had been used on the teeth. Here let me digress to say that nothing has disturbed me more than to see cases fresh from the hands of men noted for their skill that to my mind have been absolutely ruined. Err always on the side of temperance in this matter of grinding in the mouth of a person of any age.

To continue the routine of treatment, after the occlusion has been adjusted, a final curettement should be done twice as rapidly the second time over, hence the upper and lower right could be covered in one appointment and the upper and lower left at the next. The next appointment is used in thoroughly polishing these teeth with the aid of an orange-wood stick, but never, unless you are an expert, use any revolving instrument, the risk of injury being too great even in the hands of the most skillful. The following appointment should be used in teaching the patient to care for the oral tissue and teeth without injury and with the idea of

approaching as complete a state of cleanliness as possible. We have used thereby, including the appointment for examination, about ten appointments. After having given this matter careful attention for twenty-five years I find that most men fail because of lack of thoroughness.

Up to this point I have been talking about a treatment of disease known to most of us mortals as pyorrhea. The other condition referred to at the beginning of this talk I have recognized and taught others to recognize for many years. I mentioned it at an appearance before the American Dental Club of Paris during the War, and I demonstrated it before the American Dental Society of Europe in Paris in 1927, where I showed a patient and operated. This other mouth condition, which has many of the appearances of a typical pyorrhea, does not get well after the most thorough local treatment. It improves, but the improvement is not permanent. After much thought and care one is able to distinguish almost at a glance between these two types of cases. For lack of a better way they can all be treated locally, and, if the treatment is skillful, the cases of true pyorrhea get well and with proper home care stay well. The improvement in the other type of case is simply transient, and the condition quickly returns. If you know of no other way to differentiate between these two types, treat them all locally and the truth is revealed thereby. All the cases in this second class are the reflection or expression of a disturbed systemic condition, and that is why there have been so much confusion, discour-

agement, and disagreement in handling these mouth conditions.

I am not going to make a definite statement as to the percentage of these two types of cases, but out of every hundred there is surely a very large percentage that belongs in the field of disturbed metabolism. One thing, however, is certain, that is, that this type of disorder must be recognized by the members of the dental profession, for they are surely the first to see it. If these cases are allowed to go until they reach the hands of a physician, it may be too late to save not only the health of these patients but their lives. Whether or not the members of the dental profession are ready to assume this responsibility remains to be seen.

CASES

Recently I saw a patient for prophylactic treatment who first came under my care in the winter of 1905. I put this man's mouth in condition, cared for him until 1915, when I came to New York to practice, and then did not see him again for nearly seven years. After this long period with almost no dental care it took about a week to get the mouth back in shape. I have seen this man at periods since, and during the twenty-three years since he first came under my care he has lost but one tooth, and that was the result of poor root-canal technic. I may add that I did not touch the occlusion in this man's mouth in 1905 when he first came into my hands, but adjusted it some sixteen or seventeen years later when he followed me to New York. It would seem to indicate that it was not one of the strong factors in the treatment of this case. Unfortunately there

were no x-rays taken of this case in the beginning. This patient is now in his early sixties.

Another case, that of a young lady of twenty-two, typical of the class of disturbed metabolism, responded with surprising rapidity when new food habits were acquired. From the time she was fifteen years old until she was twenty-two (the age at beginning of treatment) she used some form of

laxative medicine every night of her life. She was taught how to get along without this aid and overcame this condition in four days and has not taken a drug for this purpose since, a period of three years. When she was last seen a few months ago, none of the teeth had been lost, although in the beginning some parts of the mouth were extremely bad.

8 West 40th Street



[PULP CAPPING]

Owing to the fact that the pulp is made up largely of embryonic tissue, much should not be expected in the way of repair of the injured parts, for it lacks many of the necessary characteristics possessed by fully developed cells. The fact that this organ lacks these qualities indicates that it was never intended to function in this manner. I believe that it is hopeless to expect any method of pulp capping to be successful under such conditions.

—GROVE.

Necrosis of the Mandible

By WALTER S. HANNA, D.D.S., Pittsburgh, Pa.

Formerly House Dental Surgeon, Bellevue Hospital, New York, N. Y.

The patient, M. G., a laborer, aged 30, presented at the Dental Surgery Clinic, Bellevue Hospital, New York, on August 15, 1928, for examination. There was considerable edema of the



Fig. 1
The mandible denuded of periosteum.

right submaxillary region and a discharging fistula below the lip in the lower cuspid region. Clinical examination revealed necrosis of the mandible, denuded of muco-periosteum, as shown in Fig. 1.

The history of the case follows:

Six years before, the patient had had a right mandibular third molar extracted under nitrous oxid and oxygen anesthesia. Two days after the extraction he complained of swelling accompanied by considerable pain in the region of the retro-alveolar triangle. Two days later he returned to the dentist, who advised the extraction of the right mandibular second molar,

which also was done under nitrous oxid and oxygen. At the same sitting, October 25, 1922, the dentist made an intra-oral incision for drainage and inserted an iodoform gauze drain.

The patient returned daily for a period of twenty-two days, and the dressing was changed and the wound irrigated. At the end of that time lateral x-rays were taken of the right side of the mandible. The plates revealed a unilateral fracture at the angle of the ramus. The patient was then admitted to a New York hospital for treatment. The fracture was reduced and the parts were held in position by the use of Winter arches and a Barton bandage.

After wiring, osteomyelitis developed, which required an extra-oral incision, as shown in Fig. 2.



Fig. 2
Scar of the extra-oral incision.



Fig. 3
Fistula on the chin.

An iodoform drain was inserted. The patient returned daily for a period of fifty-nine days for treatment, which consisted of changing the iodoform gauze drain and irrigation. At the end of this period he became dissatisfied with the treatment and removed the arches, neglecting further treatment until August 15, 1928.

In April, 1926, a fistula had appeared

at the anterior part of the chin and was due to irritation from an anterior fragment of a sequestrum, as shown in Fig. 3. The patient at this time had slight pain and experienced great difficulty in mastication, besides annoyance from the stench due to the formation of the sequestrum.

On August 28, 1928, the patient was admitted to Bellevue Hospital for treatment. Lateral x-ray plates revealed a sequestrum extending from the region of the cuspid to the coronoid and condyloid processes, as shown in Fig. 4. Two days after admission an operation was performed under rectal anesthesia by Drs. Winter, Hildebrand and Hanna. An anterior incision was made, the sequestrum was loosened by blunt dissection and then removed in mass, as shown in Fig. 5.

The wound was packed with iodoform gauze for forty-eight hours and

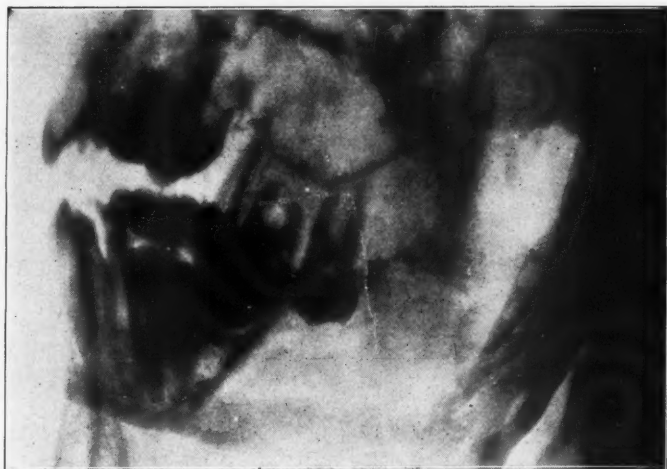


Fig. 4
X-ray showing the sequestrum.

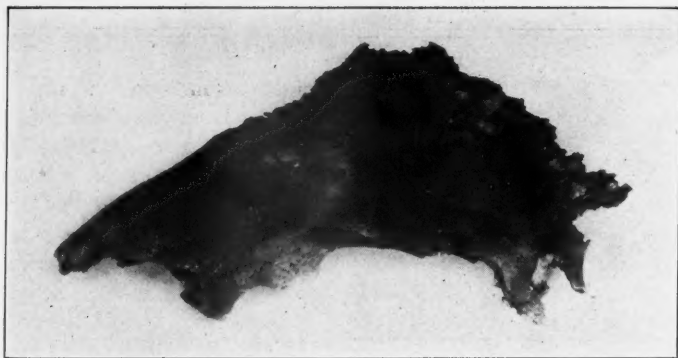


Fig. 5
The sequestrum after removal.



Fig. 6
X-ray showing the end-result.

then the packing was removed, with the result as shown in Fig. 6. After this no dressing was necessary.

Post-operative treatment consisted of irrigations of sodium thiosulphate and applications of 25% argyrol to the wound. For seven days after the drain was removed, the patient was seen daily and the wound was irrigated. A hot normal saline solution was used by the patient as a mouth-wash.

At this time the fistula (Fig. 3) was closed by freshening the surface edges

and then bringing them into apposition with three fine silk sutures.

CONCLUSION

In conclusion, in treating necrosis of the mandible or maxilla, osteomyelitis or any such disease where a sequestrum has formed, great care should be used and only the exfoliated bone should be removed, for a too radical treatment may be the exciting cause of further bone destruction.

4055 Jenkins Arcade.

Nutrition

The report which follows is a brief summary of the more striking points in the first of the five lectures on this subject given by Sherman L. Davis, Ph.D., of the University of Indiana, before a special class of the First District Dental Society, New York. Reports of other lectures will follow in subsequent issues.

No effort has been made to have the report anything like complete, because Dr. Davis is soon to publish the results of nearly forty years of study in a series of monographs. It merely presents what it seemed to one hearer worth while to carry away.

ALBUMINS OR PROTEINS

These are the names of a group of substances which contain carbon, hydrogen, oxygen and nitrogen in combination with sulphur. Their importance in the bodies of animals and plants is indicated by the word *protein*, which comes from a Greek verb meaning "to grow together first." There is no known life without proteins.

Plants form their proteins from simple inorganic elements in the earth and air, but animals cannot do this and must form theirs from elements which they can use as food. Animals there-

fore must depend on plants and other animals for their protein material.

Proteins serve many purposes in the body, among which it will be sufficient if we remember that during the period of growth they supply the material for the building of the organic parts of the body, that when the period of growth is over they supply the materials for the repair of organic tissue worn out by the body's activities, that they keep the great chemical processes of the body going, especially those related to the activity of cell nuclei, and that, on occasion, they may furnish heat and energy.

When we think of proteins, we are apt to think first of meat, fish, eggs and the like, and these of course are proteins. Proteins are found also in the vegetables, and there is no great difference, from the viewpoint of the chemistry of our bodies, between animal proteins and plant proteins. When the proteins from beefsteak and those from

beans reach our blood stream after passing through the processes of digestion, they are indistinguishable one from the other.

The terms *albumins* and *proteins* cover an enormous number of substances which, while alike in certain respects, differ greatly from one another in other respects. But every protein is built up of elements known as amino-acids. There seem to be about twenty such acids, and a protein which contains all of them is called a completed protein. Casein and lacto-albumin are probably the only two albumins which contain all twenty of the amino-acids; both of these are found in milk. Some of the proteins lack amino-acids which are essential to growth or repair, and if these are not supplied by the use of other proteins which contain them, organs which depend on these acids may first lessen their function and then atrophy.

The proteins have very large molecules and great atomic weight, so that they cannot pass through animal membranes. They are therefore unavailable to the body as food in their original form. When proteins are eaten, they are not digested by the fluids of the mouth, but when they reach the stomach, they are acted upon by the HCl and the pepsin and changed into substances known as peptones. Even yet they are not available as food, because, if a peptone is isolated, dried and then injected into the body, it is highly toxic. In the upper part of the small intestine the peptones are split into substances known as peptids, and in the lower part of the small intestine the peptids are broken down into amino-acids which are soluble in water,

and which pass readily through animal membranes.

The splitting which has just been referred to is done by enzymes, which are present in the mucous membrane of the digestive tract. They are probably either single amino-acids or compounds of a few such acids, but they have not yet been isolated in a chemically pure state. Their functions not only are numerous and wonderful, but are essential to life. The enzymes in different parts of the tract or in different glands have characteristically different actions upon the food stream.

When the amino-acids have passed through the membrane of the intestinal tract, they are re-assembled into what may be called the two stock protein solutions of the human body, serum albumin and serum globulin. These solutions differ in chemical composition and in purpose. Both of them circulate constantly in the blood stream. When they reach the vital organs, the enzymes present there tear them down into amino-acids, and each organ selects what it requires. In this way more than thirty distinctive types of tissue containing albumin are built up.

Some of the amino-acids are essential to life, like tryptophan; some are essential to growth, like thyroxin and lysine, while some others maintain health but do not support growth. Thus, if an animal is fed on gelatine as its sole protein, it will remain in health but will not grow.

It is not practicable nor desirable for us to try to isolate single proteins and live on them or even to take only one protein at a meal. We may meet our protein requirements by varying the proteins we take in such way as to

include all that are most desirable. It will be quite sufficient if we remember that milk contains two very valuable proteins, and that when we do not take milk we can get valuable proteins from cheese. Many of the vegetables contain important proteins, while muscle meats are low in protein value.

How much protein does the body require daily? That depends somewhat on the purpose for which the proteins are to be used. In the period of growth, that is, before the age of 24, perhaps as much as 150 grams of protein daily may be necessary. After growth is complete, 30 grams of protein daily (1 oz.) will suffice for all ordinary tissue repairs and to keep the great chemical processes going, and an intake of 60 grams (2 oz.) should be well on the safe side. If protein is to be required to supply energy for the body, much more will be required, but this is a long and complicated process and unnecessarily laborious for many of the important body structures. The body has no provision for storing any excess of proteins, and it breaks down the excess and burns it for heat and energy, but unfortunate conditions sometimes supervene.

If an excess of protein is eaten, the liver is required to do much work in extracting the ammonia from it, so that it can be changed into urea, which is harmless, and can be eliminated from the body. So long as the liver is capable of doing this perfectly, no harm to the body will result, but in fleshy people the liver is likely to be somewhat infiltrated with fat and may be incapable of fully exercising this function. The result may be an accumulation of products in the blood which cause hyper-

tension (high blood-pressure) and kidney disease. Red meat is the worst enemy that any person with high blood-pressure can have. Such persons should take not more than 30 grams (1 oz.) of protein daily, and that mostly from dairy products and vegetables. This restriction of the protein ration will usually reduce the hypertension to within reasonably safe limits and may greatly prolong the life.

There are three reasons why a high protein diet is contra-indicated for most of us after the period of growth:

(1) Living in enclosed spaces as we do, such a diet ultimately develops in the large intestine a flora inimical to health. Heavy meat-eaters usually want acids, and that explains why they like kraut juice.

(2) We do not know the quality of our meats. I see more skin disturbances in people who are heavy meat-eaters than in those who satisfy their energy requirements largely on vegetables and dairy products.

(3) Meat is poor in the all-important accessory food substances and mineral salts.

Our studies do not support the claim that the energy requirements are better met with meat proteins than with other proteins. If to three groups of animals there are given proteins in three forms, to the first meat, to the second milk, to the third crackers and milk, the energy efficiency of the animals will be about as follows:

Those on meat proteins	106
Those on milk	155
Those on crackers and milk	141

An infant was recently presented who was believed to be in danger of death from eczema. The mother, who

was nursing the child, became quite incensed because I did not examine it more closely. I told her that I did not need to examine the child, and that if she would stop gorging herself on pork the child would get well. She stopped and in five weeks the baby was free from the trouble.

A man weighing well over three hundred pounds had eczema very badly every year. I asked him how much steak he ate at one time. He said, "Two dollars and a half's worth." When I told him that he would thereafter be limited to two ounces, he drew the area out on his hand and said, "What do you think I can do with that

much steak?" I replied, "I think you can get well," and he did.

Let us then close with this practical application: that the proteins are essential to life, to growth and to health; that they are found in animal and plant foods; that we need about an ounce a day for actual repair and support during adult life, so that an intake of about two ounces should be sufficient; and that we may well vary the proteins from day to day and from meal to meal so as to cover the list of those most desirable, remembering to keep a sufficient quantity of milk constant, and that it will be better for the body to get its heat materials and energy from other sources.



[THOROUGH EXAMINATION NECESSARY]

Since the mouth is universally recognized as the special field of the dentist, he should consider himself responsible for the detection of every morbid condition that may exist there. A general examination of the mouth should be just as much a routine affair in the case of a patient who presents himself for the treatment of diseased teeth as is the general examination of the body by a physician when a patient complains that his heart is acting badly. But such an examination is the exception rather than the rule.

—HIPPLE.

The Dental Clinic of the Columbia University School of Dental and Oral Surgery

By HAROLD J. LEONARD, B.A., D.D.S., Professor of Dentistry, New York, N. Y.

In the May issue of *THE DENTAL DIGEST* appeared an article by Maurice William, D.D.S., under the caption *The Community Dental Problem versus The Dentists' Economic Problems*. In this article Dr. William takes the Columbia University Dental School and its dean severely to task for the policies which have been inaugurated in the dental clinics since Dean Owre came. While there is no desire to enter into a controversy by a formal reply to Dr. William, it does seem worth while to let it be known just what the School is doing and is expecting to do in the immediate future, so that there need be no further misstatements of fact concerning it and so that certain needless fears which seem to have been aroused may be allayed.

In its present location on the three upper floors of the Vanderbilt Clinic wing of the Columbia University—Presbyterian Hospital Medical Center the dental clinic has one hundred thirty-one dental chairs, of which ten are for oral surgery, twenty for prophylaxis, fifteen for orthodontia and children's dentistry, three for oral diagnosis and eighty-three for operative and prosthetic dentistry and periodontia. At present there are approximately sixty dental students in each of the freshman and sophomore classes, and thirty in each of the senior and junior classes. Sixty is the limit of students in each class which the laboratories of the School are designed to receive. There are seventy dental hygienist students

each year and six graduate students in orthodontia. The present infirmary space is adequate for very little more than this number of students.

In addition to the student clinic, the School has had to assume certain obligations in the care of patients which require the services of graduate dentists. Under the terms of the Medical Center grouping, the Dental School is obligated to take over the dental work formerly done in the dental clinics of the Vanderbilt Clinic and Presbyterian Hospital. In other words, Columbia University supports the necessary dental care of these patients over and above what they themselves can afford to pay. This work, outside of oral surgery and prophylaxis, is mostly plastic filling work and as such is of very little use from the standpoint of teaching dental students. The School has therefore to delegate this work to graduate dentists on the staff. The cost of this service to the University will probably be considerably over ten thousand dollars a year. The equivalent of two full-time operators, two dental interns and three dental hygienists are now engaged on this work.

The School is also expected to do in dentistry for the faculty and students of the University and the Medical Center what the University Health Service is doing in medicine. For this work considerable staff and space are needed but have not yet been obtained. At least six full-time operators are needed for this work. At present but

two operators are giving part time to it. Several men have been obtained, but they have been absorbed in one way or another into the teaching staff, so that their services are no longer available. Three of them are now engaged on research work in prosthetic dentistry. Dean Owre plans to recruit this group up to required strength as fast as operators can be obtained who measure up to the requirements of the work.

This service for people of moderate means such as make up the University Community is the chief point of criticism of the School. The service consists of every type of dental treatment of such a grade as to serve as model work for student observers. It is given at cost, which cost includes salaries for the operators, technicians and assistants doing the work and the cost of material, but not rental or overhead costs.

The service is not strictly limited to members of the University and Medical Center Communities, but is practically so. There is a definite obligation to take care of these patients if possible, and since the operators are dated up two months or more ahead, it means that others are practically excluded. Unless there should be a great accession of clinic space, this clinic can never be large enough to care for more than the members of these two communities.

The time may come when another clinic room can be added, which may give room for a really large pay clinic for people of moderate means. There are good reasons to think that this would be a desirable thing for the city and worth what it would cost the University in initial equipment and overhead expense for maintenance, even though it would be opposed by many

dentists who feel that their personal rights to these patients would be invaded.

The only real issue in this case is the matter of the best and most economic service to the public, not only at this time but in the future. There is no question about the right of the people of moderate means to good dentistry. If the University can arrange a clinic for these people without great expense to itself, it will be making a real contribution to the public and to dentistry as a whole, even though it may mean some immediate hardship to dentists who are unable to compete from the standpoint of technical proficiency. The difference in fees between the clinic and private practitioners on account of free rental and overhead in the clinic is never going to be such as to induce people who can afford to go to private practitioners to come to the clinic, provided they can get satisfactory treatment in the private offices. There are many disagreeable features in attending a clinic like that of Columbia which are believed to more than offset the lesser costs of treatment.

Experience in other cities has shown that when the standards of dentistry are high there is a correspondingly greater demand for service. Eventually a high-grade clinic will elevate the level of practice and create room for many more dentists in the city than there are at present.

The present graduate clinic in orthodontia of two years' growth now has nearly five hundred patients under treatment who are paying costs excepting rental and overhead. So far there has been no indication that the practice of orthodontists in the city has been

hurt by this development. It simply means that nearly five hundred children are now getting good orthodontia who otherwise would not have it. The demand for orthodontia service is increased by this amount.

However, the service phase, although important to the University, is secondary to the teaching function. It is necessary in a modern medical or dental teaching institution to have a large clinic of high-grade service as a basis for the teaching. It serves as a demonstration field to the student, it creates a background for the student clinic, it serves as a recruiting and training field for future instructors and as a practice clinic for full-time instructors. Just as the modern medical school is built in conjunction with a hospital and out-patient clinic, in the same way dental teaching will come more and more in the future to be linked with large dental service clinics. The type of clinic doing emergency work for the destitute is not enough. It must embrace all types of high-grade restorative procedures.

Lest it be thought that the pay clinic for people of moderate means is on a commercial basis at Columbia, it can be categorically stated that it is just paying for the salaries of the operators, technicians and assistants working on these patients together with the cost of materials used in their work. It is not and never can be nor was it ever designed to be a source of profit to the institution or a means of offsetting the expense of other departments of the School. It might be said in passing that the expense to the University of the Dental School is more than as much again as is taken in in student fees

and infirmary receipts. The Dental School is certainly not a profit-maker for the University.

A department of work which is at present lacking in the School, and to which Dr. William called attention, is children's dentistry. This department was not functioning in any real sense at the time Dean Owre came nor has it been possible before this time to get it under way. This does not mean, however, that it has been forgotten. Beginning July 1, 1929, a man who is both a pediatricist and a competent dentist has been appointed as associate professor for full-time work in this field. The intention is to make this largely a research department with the clinic limited to patients who will cooperate in the work. Except for the teaching of dental students in the technic of handling children and in known preventive and operative phases of children's dentistry, the entire attention will be directed to a biochemical and physiological study of the causes and systemic prevention of dental diseases in children. The clinic space available in the School is by no means adequate to do any large amount of the necessary children's dentistry for the poor of the City of New York. The fifteen chairs used in the mornings for orthodontia are available in the afternoons for this work, and these are all. The curriculum calls for one half-day a week throughout the senior year to be devoted by each student to this work.

With the exception of a month or so after the School opened in its new location in September, 1928, there has never been a time when it has not had more patients that it could accommodate for both the student clinic and

the demonstration service clinic. If patients who desire service could be accommodated, there is every reason to think that the School could draw five hundred new patients a day. With the operators and space available it can take on the average less than fifty new patients a day, of which approximately half are referred from the Vanderbilt Clinic and Presbyterian Hospital Medical Departments for simple emergency dentistry. It has at no time been necessary to advertise for patients nor has there ever been any desire to do so. Statements have been prepared for the press about this clinic with the idea of acquainting the public with the problems and aims of the School as a background for an endowment campaign. These statements have in two instances been twisted in editing after leaving the School, so that an unfortunate and undesired emphasis was placed on the cheapness of service to be rendered by the clinic. The few inquiries that came from prospective patients as a result of these press notices were nothing but a source of

embarrassment, as the clinics were already full.

The Columbia University School of Dental and Oral Surgery stands for better dentistry in the City of New York. It desires to stand shoulder to shoulder with those in and out of the profession who are unselfishly devoting themselves to this end. It is attempting experiments in dental education and dental economics which have been tried out in medicine and found good. Like all persons and institutions which break out of the beaten paths, it must expect to be misunderstood and opposed. In such undertakings healthy criticism is most helpful and should be desired. In opposing policies which are intended for the good of the public and the profession dental individuals and societies should not put themselves in the untenable position before the public of being unable themselves to furnish a needed service, yet fighting by every means the creation of agencies which can and will serve the community needs.

630 West 168th Street



An Important Predisposing Cause of Pyorrhea*

By J. PAUL WINTRUP, B.S., D.D.S., Wilmington, Del.

The disease known generally as *Vincent's infection* has been described. Its etiology, symptomatology, and some of the accepted methods of treatment have been outlined. In many diseases the general health of the patient suffers hardly at all from the acute attack. Reflections of acute parotitis, for instance, in the testes and ovaries are relatively more important than the mumps themselves. Scarlet fever very often leaves throat complications. By the same token it is quite possible that *Vincent's infection* may cause a disturbance more detrimental to the human economy than its acute manifestations would indicate. This appears, in fact, to be the truth. Hence I desire to consider *Vincent's infection* as one of the forerunners or predisposing causes of a condition commonly known as *pyorrhea*, but more correctly described by the terms *suppurative periodontoclasia* or *chronic periodontitis complex*.

All of us are able to recognize *pyorrhea* when over a period of years it has denuded roots, torn down alveolar process, and left a path of purulent debris in its wake. That is easy. What to do is just as easy. We extract every tooth affected, and little or no scientific training is required to arrive at this conclusion. The average patient will present with the words, "I want these teeth extracted." The

patient has recognized the disease and prescribed a course of treatment. All we can do, then, is the surgery and the prosthetics.

We should be more interested from a medical or, if you please, a dental point of view in preventing this catastrophe. If we can recognize the early symptoms, there is hope. Louis Wack, Chief of the Dental Department at Cornell University Medical Clinic, points out this fact, in a way, when he says that hundreds of patients come to him after having been discharged but recently by private dentists with obvious areas of infection yielding pus and indicating lack of diagnostic ability on the part of dentists in recognizing the disease in its early stages.¹

Vincent's infection, I believe, is one of the first clinical signs of the disease that the average general practitioner is in a position to see. I shall attempt to qualify this statement with data compiled from a bacteriological study of 150 cases which came under my observation, where a previous diagnosis of *pyorrhea* had been made, and with other data.

Perhaps the greatest authority on periodontal pathology from a purely scientific point of view is Harold K. Box of Canada. His monograph *Studies in Periodontal Pathology*² un-

¹Wack, Louis, *Pyorrhea—The Disregarded*, THE DENTAL DIGEST, July, 1928.

²Box, Harold Keith, *Studies in Periodontal Pathology*, Canadian Dental Research Foundation Bulletin No. 7.

*Read before the Annual Meeting of the Delaware State Dental Society, Wilmington, Del., 1929.

doubtedly is the most scientific report that we have on the lesions found in the structures surrounding the teeth. It is impossible to consider this monograph here, but I would invite your attention to it because of its great importance in gaining an idea of just what this thing we call pyorrhea really is. I say this because I am of the same opinion as Miner, who points out that "without doubt many chronic cases (of Vincent's infection) have been diagnosed as periodontoclasia."³ This point should be further stressed. I want here to consider Vincent's infection as a predisposing cause of pyorrhea and to differentiate it from pyorrhea as described so completely by Box. Vincent's infection is not pyorrhea, and pyorrhea is not Vincent's infection. But let Vincent's infection alone and pyorrhea, it appears, will be the result.

Box considers in his text a condition which he chooses to call *acute fusospirillary gingivitis*. Stillman and McCall describe this condition as follows: "The chief characteristics are: sudden onset; a sensitive and serpiginous ulcer, consisting of necrotic tissue elements and a creamy, pasty exudate; characteristic fetor of the breath; hemorrhages, either spontaneous or induced by touch; a neurosis exhibiting malaise, mental depression, insomnia, restlessness; loss of appetite; profuse flow of saliva, often with a metallic taste; temperature above normal."⁴

Microscopically we get this picture: many epithelial cells are cast off, and

many are swollen and their nuclei pushed against the cell wall by an exudate consisting of serum and leukocytes. There is a deposition of fibrin which entangles the white cells and bacteria. This is the first step. The most important structure about the normal teeth, the marginal gingivae, is being attacked. Prinz points this out when he says that in "chronic suppurative gingivitis . . . there is a destruction of the alveolar circular ligament."⁵ Proliferation of the epithelial cells takes place with the formation of trabeculae, which extend into the gingival tissues. The structures at the amelo-cemental junction become detached and pocket formation begins. It is very difficult to recognize this clinically. If we can introduce an instrument to the depth of more than two millimeters, we may assume that the pocket has penetrated into the peridental membrane. The disease has made its second killing. From then on, fibrous masses become deposited in the periodontium, and the ultimate result is the condition previously mentioned of the disease reaching such proportions that the patients recognize it.

What is found in the exudate about the infected teeth? Many investigators have made smears of it, and we generally understand that streptococci, staphylococci, endamebae, red and white cells, fibrin, and various forms of the fusiform bacillus and spirochetes are present. Goadby noted in 1907 that in 90 cases, 50 limited to superficial pus and 40 to deep pockets, there were spirochetes in 37 of the superficial-pus

³ Miner, Leroy M. S., *A General Consideration of the Problem of Vincent's Infection*, THE DENTAL DIGEST, September, 1928.

⁴ Stillman and McCall, *Clinical Periodontia*, The Macmillan Company, New York.

⁵ Prinz, Hermann, *Diagnosis and Symptomatology of Pyorrhea Alveolaris*, THE DENTAL DIGEST, January, 1928.

cases and 19 in the deep-pocket cases.⁶ In this work more cases occurred showing spirochetes than any other organism. I consider that highly important. Leary found fusiform bacilli and Vincent's spirochetes constantly in the examination of smears from 100 cases.⁷ Kritchevsky and Séguin found that in cases previously treated for pyorrhea three-fourths of 244 subjects studied were positive for Vincent's spirochetes.⁸ Where no previous treatment had been given, nearly every case showed an abundance of spirochetes. In initial stages of pyorrhea one-half of the cases yielded spirochetes, and in healthy mouths the organisms were rare or absent in three-fourths of the cases. All of this has been checked and rechecked with little change. The case which definitely shows loosening of the teeth, recession of the gingivae with considerable alveolar destruction and a copious, purulent exudate is the case which has progressed far beyond the point to which I have especial reference. Many smears of pus in advanced cases do not show the spirochetes. The pyogenic organisms seem to predominate. It occurs to me that the lesions produced originally by the fuso-spirillary group have become invaded by other organisms, which, as a result of their activity, have destroyed the primary invading Vincent's organisms.

In a bacteriological examination of some 150 cases in which a diagnosis of

pyorrhea had been made, we were able to demonstrate some Vincent's organisms in all but twelve cases, and the greater number of the twelve were patients who gave more than ordinary care to their teeth. Of these twelve some had been given antilutetic treatment also. There was no case in which all of the teeth were ready to fall out. Mobility was not extraordinarily marked. Many of them showed definite traumatic occlusion, but not all had this symptom. All of our smears were made after first rinsing the mouth with a saline wash and taking the material from deep-seated sources along the tooth root. That is the place where one would expect to find anaerobes. The smears were not all the same. We classified our patients into four groups, designated by 1+, 2+, etc. The preponderance of smears was in the 2+ class. The patients were all hospitalized and in wards—the working class of people, in which pyorrhea is common. Perhaps the fact that these patients were all of this class accounts for the results. The cases were selected because they gave evidence in the mouth at one or more places of definite pyorrhetic symptoms, such as ulatrophia, looseness, color change, pocket formation, calculus, etc. Tavlin reports finding Vincent's organisms in every one of 600 cases admitted to his service in the U. S. Public Service Hospital at Hot Springs, Ark.⁹ This is only further evidence of the widespread presence of the bacteria and the infection. All of these 600 cases were sufficiently pronounced to require treatment.

⁶ Goadby, *Mycology of the Mouth*, London, 1903; *The Lancet*, March 9, 1907, and December 25, 1909.

⁷ Leary, Timothy, *Pyorrhea Alveolaris from a Bacterial Standpoint*, *The Dental Cosmos*, January, 1910.

⁸ Kritchevsky and Séguin, *The Pathogenesis and Treatment of Pyorrhea Alveolaris*, *The Dental Cosmos*, September, 1918.

⁹ Tavlin, H. F., *Vincent's Angina*, *THE DENTAL DIGEST*, April, 1928.

I believe that these data indicate one definite thing—that Vincent's infection, particularly the chronic type, the type that occurs in mouth after mouth of highly resistant individuals, prepares the field for later destruction and pyorrhetic changes. Hardgrove says this on the same subject: "I sometimes wonder if in the beginning pyorrhea was not brought about by Vincent's organism. It looks reasonable, but I do not wish to make a positive statement to that effect."¹⁰ Moore also says: "It occurs to me that Vincent's infection may be one of the predisposing factors in the development of certain types of so-called pyorrhea."¹¹

The previous essayist reports that in his experience the disease is found commonly among children. That is an important point, if we can but substantiate that claim statistically. Others have reported opposite findings. We are at work on just such a problem at this time. If an almost recognizable lesion be started in youth, it seems quite apparent that by the time the individual reaches middle life the original lesion will have had an opportunity to become very considerably enlarged.

Pocket formation is one of the most important single factors we have to deal with in treating pyorrhea. Gottlieb points this out when he says, "The presence of a pocket is the chief prerequisite for the existence of pyor-

rhea."¹² Any one who has treated a case of Vincent's infection will be able to recall ulcerations of the interdental papilla. Brody declares that "the interdental papillae are completely destroyed, more especially between the mandibular anterior teeth, but those between the bicuspid and molars are often attacked and damaged."¹³ Loss of this highly important structure, with the destruction of the alveolar crest fibers of the periodontal membrane which support it and keep it in relation with the alveolar process and the cementum, is the first step in pocket formation at that point. Leonard, in discussing the downward progress of the epithelial structures about the tooth in pocket formation, suggests that the gradual recession of the gingival crevice "may be the irritating effect of the mild inflammation found at the base of the crevice in practically all mouths."¹⁴ Is it too radical to suggest that Vincent's organisms, when so widely distributed, may be a large factor? I think not.

With the destruction of the interdental papilla a lodging-house for food is made possible and the subsequent action of bacteria very rapidly destroys the underlying tissue. The infection progresses in the periodontium, the lamina dura and cementum are lost, and a large area of infection remains. The ulcerations caused by Vincent's disease appear to me to be extremely

¹⁰ Hardgrove, T. A., *Vincent's Infection from the Pathologic and Bacteriologic Point of View*, Journal of the American Dental Association, November, 1928.

¹¹ Moore, Arnott A., *Vincent's Infection*, Journal of the American Dental Association, September, 1928.

¹² Gottlieb, Bernhard, *Tissue Changes in Pyorrhea*, Journal of the American Dental Association, December, 1927.

¹³ Brody, Herman, *Vincent's Disease in Dental Practice*, The Dental Digest, December, 1928.

¹⁴ Leonard, H. J., *The Treatment of Periodontoclasia*, The American Dental Surgeon, January, 1928.

important, therefore, as early causes of pocket formation. I have in mind a case of a young man of about 28 years of age where three such potential pockets exist now. He had a highly virulent and chronic Vincent's disease which has already required six months of intermittent treatment. Despite all of his precautions, food is constantly being wedged into the spaces, and the interdental papilla is now healed at a point just occlusal to the amelocemental junction. What will happen in these places over a period of years it is difficult to say.

I have little to say regarding treatment. I agree that chromic acid and sodium perborate are indispensable. However, with others I have come to the conclusion that a rotation of treatment is perhaps better for all cases. Hence I use chromic acid, 8%; copper sulphate in glycerin; acriviolet; mercurochrome, 15-20%; and sulpharsphenamin in glycerin, locally. Always the use of sodium perborate at home is advised, one dram in a half-glass of warm water every two hours the first day, then every four hours thereafter. This treatment is the treatment for Vincent's infection. I feel that it is the first step in curing pyorrhea. The usual scaling and relief of trauma, with extraction of all teeth denuded to the extent of half or more of their roots, as disclosed by the radiogram, are well-

known rules. The only additional step I follow is to advise the use of a very stiff brush, with sodium bicarbonate as a dentifrice. This, as you may know, is not at all pleasing to the taste, so I suggest following this brushing with any dentifrice the patient cares to use. This procedure, of course, increases the brushing time and gives added stimulation. The cleansing and antacid functions of the bicarbonate are well known. In addition, making the patient brush twice instead of once does not seem to be recognized as a trick and is tremendously valuable.

SUMMARY

- (1) The organisms causing Vincent's infection were found in smears of 138 out of 150 mouths in which pyorrhetic lesions were found.
- (2) It is contended that the ulcerations of this disease destroy the marginal gingivae and interdental papillae, thus predisposing to pocket formation by destroying the amelocemental attachment.
- (3) Treatment for Vincent's infection should be instituted in every case of pyorrhea before scaling.
- (4) The use of sodium bicarbonate as a dentifrice for after-treatment in pyorrhea and Vincent's infection is urged.

607 Medical Arts Building



Oral Surgery In Practice

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(Continued from May)

CONTROL OF HEMORRHAGE

¶365. Among the hemostatics adrenalin chloride occupies an important place. It should be applied locally in 1:1000 solution.

¶366. Gauze wrung out of hot water or a hot saline solution often checks bleeding. This may be used during an operation when bleeding is so profuse that it obscures the operating field.

¶367. Clotting-time has been found to be reduced continually in many instances following the administration of calcium lactate for several days in one- to five-grain doses.

¶368. Continuous oozing of blood from large wound surfaces may often be arrested with a tampon made of a strip of sterile gauze, which should be allowed to remain in the wound for forty-eight hours.

¶369. Antipirin acts as both a hemostatic and an antiseptic when packed into wounds and tooth sockets. Gauze wrung out of a 5% solution is a convenient way of applying it.

¶370. Serum preparations such as thromboplastin and hemoplastin have been used advantageously to arrest parenchymatous hemorrhage.

¶371. Hemophiliacs must be treated very cautiously. They should be subjected to operations only when it is absolutely necessary. Administration of calcium chloride in from 30- to 60-grain doses four or five times a day have been found quite helpful.

¶372. A simple way of determining bleeding-time is to stick the end of a finger with a needle, then blot it with a piece of blotting-paper repeatedly. Normally the bleeding should stop in a half-minute. Patients with prolonged bleeding-time should not be operated upon unless previously prepared.

¶373. The first step in arresting hemorrhage is to determine the exact source of bleeding. Spicules of bone and blood clots should be removed, the area syringed with warm saline solution, the surface dried and the wound carefully inspected.

¶374. Bleeding from the gum margin may often be arrested immediately by placing a suture through the gum on each side of the tooth socket.

¶375. Bleeding from the tooth socket can at times be arrested by carrying into it a little tannic acid powder on a piece of gauze.

¶376. A spurting blood-vessel in the soft tissues should be grasped with hemostatic forceps. In most cases this will arrest the bleeding, but occasionally the application of a ligature is required.

¶377. A "bleeder" in the bone may be controlled by exerting pressure upon it with some instrument or by a gentle blow from a mallet.

NEURALGIC PAIN

¶378. Neuralgic pain in many in-

stances is caused by some peripheral irritation, therefore a very careful search for peripheral irritants possibly causing the pain must be made in every case presenting such symptoms.

¶379. Deep caries, pressure of fillings upon the pulp, formation of pulpstones, impingement upon the tissues by a prosthetic appliance, retained root apices, retained residual areas, scar formation and unerupted, supernumerary, malposed teeth have been found to cause the so-called neuralgic pain which is at times relieved by the eradication of such peripheral irritants.

¶380. To ascertain the particular nerve affected in cases presenting neuralgic pain, a test of injecting novocain along the course of the various nerve supplies is very helpful.

¶381. For instance, relief from pain following a right mandibular injection would indicate that the disturbance lies somewhere along the course of the right mandibular nerve. On the other hand, failure to relieve such pain would indicate that the disturbance is not in that region, and another test injection should be made on the infra-orbital nerve, anterior palatine branch, and so on until the tract is definitely localized. When the nerve has been located, an alcohol injection may be given, which is followed by various degrees of success; at no time, however, does this cure the condition.

¶382. True or major neuralgias should be treated by surgical operation upon the Gasserian ganglion, for deep ganglion injections followed by formation of scar tissue in the nerve structure make further alcohol injections useless. By a proper technic, consisting of dividing the fibers of the trigeminal

nerve and severing the sensory fibers, paralysis of the face may be prevented.

¶383. Longer periods of relief than those following alcohol injections are sometimes obtained in cases of tic douloureux by evulsion or resection of the nerve involved.

¶384. Absolute alcohol gives the best results when injected in cases presenting severe neuralgic pain, although different strength and mixtures have been claimed to give equally good results.

¶385. The patient who is to be given an alcohol injection should be prepared for a "numb" or "dead" feeling in the area supplied by the particular nerve. This may prevent a great deal of sometimes unsuccessful explanation later.

¶386. Surgeons would do well to tell the patient suffering from a case of major neuralgia that the deep ganglion injection may give a considerable period of relief, but that it is no cure, and that on the other hand, the surgical operation upon the Gasserian ganglion usually proves to be a cure. Let the patient decide upon the type of operation to be performed and thus assume the responsibility.

POST-OPERATIVE CARE

¶387. Cold applications applied to the face or neck over the areas operated upon have been found useful both to prevent and to reduce post-operative swellings. When these are applied at one-hour intervals for fifteen minutes, the patient's discomfort is reduced to a minimum.

¶388. Post-operative pain can usually be controlled by an administration of chlorotone and phenacetin a.a. gr.

III and caffeine citrate gr. I at two-hour intervals.

¶389. When the lips of a properly coaptated wound show signs of healing at the edges, complete excision of the flap is indicated. The wound is then dressed until sufficiently filled with granulation.

¶390. The presence of pus within a cavity from which a cyst or an unerupted tooth has been removed may be determined by inserting the ends of thumb pliers and allowing them to open. The mouth of the wound is thus opened and the fluid contained therein is permitted to escape.

¶391. A blood clot is the best dressing material, therefore a wound which bleeds freely, and in which the blood clots well, should not be packed or dressed, for it will only interfere with normal healing.

¶392. Flaps mutilated during an operation slough and retard healing, therefore better results are obtained when such flaps are cut away.

¶393. When suturing, a good "bite" should be taken to prevent tearing. Small flaps that are held in position by a clot do not require suturing.

¶394. Swabbing with iodine the tissues closely approximating the area operated upon may not do much good, but certainly can do no harm.

¶395. When dismissing a patient, it is well to impress upon him not to hesitate to return to the office at any time he thinks the wound is not just right. Very seldom will patients under such circumstances become a nuisance; in fact, the opposite has been observed to be the case. Patients appreciate this suggestion.

¶396. The psychology of a patient must be taken into consideration. Accordingly, the use of plain water to rinse the mouth after an operation is not the best thing to be given under the circumstances; an antiseptic mouth-wash is much better.

¶397. Patients must be made to realize that there are situations which cannot always be foreseen, and that in the course of an operation it may be necessary to remove more tissues than had been anticipated, and therefore they must consent to whatever the operator may find necessary to do.

¶398. Operators who have not succeeded in obtaining the patient's full consent to do as the condition seems to demand, and who are forced to operate in a manner preferred by the patient, should not fail to put this fact on record. It very often saves serious embarrassment later.

¶399. Surgeons who have become desperate and are on the verge of "giving up" the job should bear in mind that by that time the operation may already be completed, and all that is needed is to observe the wound carefully and put on the finishing touches.

¶400. No matter how difficult and discouraging the case may seem, the surgeon must not become desperate, lose control of himself, become impatient with the assistant, exert undue force, lacerate the tissues unnecessarily and do other things inconsistent with good surgery. It is much more professional and human to stop then and there. The field of operation should be cleared of debris, washed out with a warm saline solution and painted with tincture of iodine; the wound should be packed with iodoform gauze and the

patient allowed to wash the mouth. Then *calmly* the whole situation should be explained to the patient. *This is very important.* Without frightening the patient he must be impressed with the seriousness of the condition and referred to some one else who may be both equipped and trained to do just this type of work better. Here all responsibility ends, and there is nothing more to worry about. Whatever follows, the practitioner has done his duty both morally and professionally as he would be expected to do. Inci-

dentally, such procedure clears one legally also.

¶401. It is a mistake to attempt to smooth out matters by telling the patient things that are not true, for these will be found out later and will reflect badly upon the practitioner. Nor must one in such circumstances escort the patient home or to the office of a specialist, refuse to accept or fail to demand the fee or offer "to make good" the charges of the specialist. Such an attitude indicates the admission of guilt.

355 East 149th Street



The Dental Assistant—Her Rôle In the Office*

By MAX H. JACOBS, D.M.D., M.D., Boston, Mass.

The dental assistant has become an integral part of the dental office unit. She is no longer a luxury; she is a necessity. Without her, office efficiency is probably reduced seventy per cent. With her the height of maximum efficiency may be attained. The problem which confronts the dentist is one of economics. How valuable is a dental assistant? How can she aid in increasing the gross income? What education and training should she have had? Is an assistant already trained by a dentist of more value than one whom he will train himself? What is a fair remuneration, and how can her salary be determined? These are questions which will answer themselves as we go along.

HIRING AN ASSISTANT

What qualifications do you desire an assistant to have? The requisites are personality, good physical appearance, adeptness, a natural interest and sympathy in fellow-beings, and a non-susceptibility to the sight of blood. Higher education and the ability to typewrite and take dictation in shorthand are secondary factors. Experience sometimes is a handicap to the dentist. If her training has not been of the right kind, it is many times more difficult to establish new routines.

When you have satisfied yourself that the assistant you wish to employ has the necessary qualifications, she

must be made to understand that, first, last, and always, she is to be a nurse, a dental nurse, and as such her time is not her own. An emergency call late at night or early in the morning, when her assistance is required, may interrupt her sleep or moments of relaxation. She must be made to understand that she is to be on duty when the first patient arrives and must be at her post until the last patient leaves.

DUTIES

A thorough understanding with the new assistant must be had. Everything must be painted in black colors and her duties exaggerated. If she agrees to work under such circumstances, she will be agreeably surprised when she finds that it is only on rare occasions that she may be called upon for extra duty.

She is to be the office housekeeper and see that everything is kept well dusted and clean. All brass and nickel must be kept bright. She is to be the bookkeeper—to take care of all accounts, send out statements and send collection letters to delinquent accounts. She is to send out follow-up cards and prophylaxis notices. It must be impressed upon her that any account not settled within a certain time must be followed up by telephone calls and, if necessary, a personal visit made to the patient's house or place of business. In other words, it may at times be necessary for her to become a collection agent.

In return for these duties she is to

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be given a salary and certain privileges. You will educate her in the fundamentals of dental science: dental anatomy, sepsis, antisepsis, sterilization. You will teach her the nomenclature of instruments, their uses and indications for use. You will teach her how to take x-ray pictures, and how to develop them. If she is willing, conscientious and alert, you will even teach her how to use the nitrous-oxid-oxygen apparatus. You will teach her laboratory technic: mixing of plaster, pouring of models, packing dies, carving wax patterns, casting inlays. You will give her the privilege of assisting you at the chair: mixing cement, synthetics and amalgam.

These are indeed privileges and matters of education, for they go to make the difference between book-keepers and stenographers and the now recognized profession of dental assistants. The assistant must be so trained that the operator does nothing more than work at the chair. His routine operative procedure must be so arranged and the assistant must be so well versed in his technic that each instrument is handed to him as required. This enhances efficiency. With no time lost, more patients can be taken care of, and such smooth routine is favorably noted by the patient.

DETERMINATION OF SALARY

When the applicant for the position has a thorough understanding about it and has been impressed with the educational opportunities offered, a fair remuneration for her services must be determined.

The total office expense must not be greater than one-third of the gross

income. The assistant's salary, therefore, is that part of the expense which, added to the general expense, equals about one-third of the gross income.

The salary is not the important part of the transaction. It is the least important item, because the assistant must be to a certain extent a partner in the business of the office. She must share in the profits. She must be made to realize that, as the practice grows, her income grows automatically with it. It behooves her, then, to exert her best efforts at all times.

The bonus plan offered by one of the well-known dental economists serves the purpose very well. His method of obtaining the bonus is as follows:

To the previous year's gross income, add 10% for normal increase. Divide this by 12 (the number of months). The sum obtained is the monthly base. The assistant receives 10% of all money received over the monthly base figure. If for one month the income is less than the base figure, she is not to receive a bonus until the amount necessary to make up the deficiency is added to the base figure of some succeeding month. For example, if the gross income for the previous year is \$10,000, add 10% for normal growth. This equals \$11,000. Divide this by 12. The monthly base figure is, therefore, \$917.00. If, however, the income is only \$900.00, the base figure for the succeeding month is \$934.00 instead of \$917.00.

Under these conditions it is up to the assistant to see that as much cash is taken in monthly as possible, for it is only in this way that she can share in the profits. Money on the books is unfavorable to her.

PSYCHOLOGICAL ASPECTS

A dental practice may be divided into three parts: (1) the office and its equipment, (2) the dental assistant, and (3) the dentist. As the patient opens the door into the reception room, there is printed on him an indelible impression followed by a subconscious reaction. This reaction may be positive or negative.

If the reaction is positive, the patient, regardless of his ailment, has found himself in an environment agreeable to his subconsciousness. The positiveness of this reaction may be either increased or decreased, depending upon the personality, attitude and tact of the individual who first receives the patient in the office. A certain amount of confidence in the office and its personnel is immediately established at this first contact.

The dental assistant is generally the first to make this contact. Her smile, her sympathy, her greeting and her congeniality must be such that a responsive chord is struck in the patient and manifests itself in a sudden loss of aloofness, strangeness and strain and in the assumption of mental relaxation. Too much attention cannot be paid to the training of the assistant in the important requisite of knowing how to greet the patient. The patient must be made to feel that the personnel of the office is kind and sympathetic, and not composed of a series of systematic mechanical devices, like robots, which take the name and address and then push the patient into the examining room.

The value of an assistant well trained in handling patients is best shown when she comes in contact for the first time

with a patient in whom the reaction has been negative. Here we are dealing with an individual who subconsciously has made up his mind that he does not like his environment. There arises within him an autosuggestion that in this office he cannot be satisfied. He is here now and might as well go through the first visit. This is the patient who comes in for an estimate, never to return.

This negative reaction, as a result of a negative autosuggestion, must be counteracted by counter-suggestion. It is the duty of the assistant to be able to recognize such an attitude. How can the assistant become proficient in this direction? First, by a natural intuition, possessed by all women, and, secondly, by a detailed study of the actions, attitudes and emotions of the general public with whom we may come in contact. The teaching of this important psychological aspect is not within the scope of this paper, nor will space permit. The interested assistant may obtain all the knowledge on this matter that she may desire by reading the literature and textbooks on practical psychology and through extension courses.

THE DENTAL ASSISTANT AND THE "SYMPATHY COMPLEX"

Psychoanalysts enumerate certain basic phases which they term *libidos*. Among these *libidos* they mention the *ego* and the libido of *self-protection*. In times of danger, in times of illness, and in times of mental and physical suffering, each individual believes himself to be of utmost importance. The so-called *ego complex* is brought out even in individuals who at other times

are possessed of well-balanced complexes. Under these circumstances the dental assistant who can recognize and avail herself of the opportunity to bring out all the sympathy that is in her and force the patient to believe that he or she is the only thing that matters at this time has greatly decreased the efforts and time necessary for the dentist to gain the confidence of the patient.

Each new patient presents himself with fear, either conscious or subconscious. That inherent libido of self-protection of which the analysts speak makes the patient look with askance upon us and everything connected with us.

We deal with a large percentage of patients who may be classified as neurotics and hysterics. The former exaggerate the symptomatology of their conditions. They like to talk about their cases. They demand sympathy. They demand personal interest. They are endowed with what is termed the *sympathy complex*. You must agree that they are not well. You must agree that they are suffering. You must agree with them sympathetically. You must suffer with them, for it is only in this way that you can gain their confidence. The dental assistant must be able to cope with this class intelligently, diplomatically, tactfully and, above all, sympathetically. If she is successful in lowering the conscious level of apprehension, she has greatly eased the work of the dentist which follows.

The dental assistant must realize that many patients have had at some time or other during childhood a severely unpleasant experience in the dental chair. It may not be within the

realm of their memory, but that experience is there subconsciously. These patients constitute the class of dental hysterics who tremble with fear even at the thought of having to sit in the dental chair. Their former experience is now a suppressed emotion held in the subconscious. As long as it is suppressed, the patient has dental hysteria. Applying the principles of psychoanalysis, perhaps in a greatly modified form, the assistant tries to recall this unpleasant experience to the patient, bringing it back to memory, and then compares the methods of yesterday with the painless ones of today.

Here the assistant can be trained to use indirect suggestion also. Just as a patient is entering the reception room from the dental chair, the assistant can momentarily turn to the old patient, in the presence of the new one of the hysteric type, and say, "Mrs. So-and-So, your work was absolutely painless today, wasn't it?" Invariably, almost every time, the answer will be, "Yes, certainly."

CONCLUSION

The sum total of all the efforts made by the assistant, from the standpoint of cleanliness, bookkeeping, assisting at the chair and in the laboratory, and from the standpoint of being able to handle all situations that may arise psychologically, makes her indispensable and of great economic value. The strain of doing dentistry, the numerous complications which arise, the many types of patients that tax us; and the confinement of our work, all require that a well-trained assistant alleviate our duties and share our responsibilities.

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Dental Facts of Interest to Those Ministering to the Sick*

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The important place that the normal teeth occupy in the proper nourishment of the body is fully realized by the earnest and sincere health-worker. Again, the unusual opportunities for bacterial growth and potential infection in and about the teeth are also realized by health-workers everywhere. When ministering to the sick, the knowledge of both these facts may be utilized as aids in the more rapid recovery of health. The assurance of improved nourishment because of healthy teeth will build up the resistance, the removal of infection will lessen the load upon the protective forces of the body, and disease will thus be more readily overcome.

In order to get a vision of the conditions as they exist in the normal, healthy mouth, let us first consider briefly the first two steps in digestion, namely, mastication and insalivation. We find the first requisite is good teeth and healthy gum tissues supporting and surrounding them, both constituting the masticating apparatus. Now, a good masticating apparatus in the adult has the following characteristics: thirty-two shining, clean teeth, sixteen above and sixteen in the lower jaw. These teeth are of normal form, in normal

position, in close contact with each other and in normal contact with the teeth of the opposite jaw during the chewing function. They are firmly embedded in the jaws and are surrounded by a normal gum. A normal gum has in turn the following characteristics: it ends in a knife-like thin margin; it hugs the tooth crown tightly; it is attached high up on the tooth crown, terminating in a beautiful parabolic curve; its color is light coral or pink and is stippled in appearance.

Such a normal masticating apparatus is constantly bathed by a thin, watery, freely flowing saliva and is fit to attack the bolus of food mechanically, thus enabling the chemical elements of the saliva and the other secretions and their ferments to do their work properly. Three main things happen to food during mastication: (1) it is subdivided into fine particles through the milling action of the teeth; (2) it is dissolved by the saliva to enhance the sense of taste, which in turn stimulates the secretion of all the other digestive juices; (3) it is lubricated to facilitate swallowing. During this process the ptyalin of the saliva begins its work on starches.

We must know and always remember the attributes and qualities of the normal in order intelligently to detect the abnormal. With this normal state as a model, let us now consider the

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most common departures from the normal of the teeth and their supporting tissues.

(1) *The neglected-looking, dirty mouth.* This kind of mouth is classed as abnormal because the normal mouth is naturally clean. We find in the dirty mouth a thick bacterial growth on the crowns of the teeth and frequently reddish, bleeding gums. This bacterial growth is translucent and sometimes escapes notice. It can be seen best and most fully viewed when disclosed by applying a little tincture of iodine to the crowns of the teeth and then washing the mouth. The stained masses of bacteria will not wash off, but will reveal themselves and their location very plainly. Commonly known as a film, these masses of bacterial growth exist even in mouths that receive care. They cause caries, tartar and gingivitis and are very adherent to the tooth surfaces.

(2) *Cavity formation or caries of the teeth.* The presence of a cavity and the resultant sensitiveness and toothache seriously interfere with normal mastication. The earliest possible attention is needed to restore normal function and to prevent a more serious infection of the pulp or nerve of the tooth, which may lead in turn to abscess formation, infection of the jaw and loss of the tooth.

(3) *Missing teeth.* The loss of but one natural tooth is a serious mutilation of the masticating apparatus, if it is not promptly replaced by an artificial substitute. Its non-replacement results in the disruption and drifting of the remaining teeth to such an extent as to lessen the efficiency seriously and weaken the very foundation of the

chewing machine. The development of spaces between the teeth permits the forcing of food against the thin gum margins, and infection is instituted. This, together with the fact that the teeth no longer bite evenly, some receiving more masticating force than they should and others receiving this force in an oblique direction, institutes the next most serious dental disease, known as *pyorrhea alveolaris* or, more scientifically, as *suppurative periodontoclasia* or *chronic periodontitis*.

(4) *Pyorrhea alveolaris.* There are two types of this disease; one is the slow, even destruction of the gum tissue and bone about all the teeth and is known as *horizontal pyorrhea*, and the other is characterized by a chronic destruction of the supporting gum tissue and a formation of pockets from which pus flows upon pressure. This type is known as *vertical pyorrhea*. They are both curable, but the treatment is complex and expensive, and it is therefore far better to prevent it by removing and avoiding the conditions that bring it about.

(5) *Trench mouth or Vincent's angina.* This is a disease of the margins of the gum. In the acute type we have a gangrenous destruction of the gum margin with a grayish-yellow pseudomembrane covering the destroyed tissue. We have bleeding, pain, offensive breath, sometimes fever, enlargement of the cervical lymph glands and salivation. There is a loss of appetite and a feeling of malaise. In this form it is contagious and is transmitted by use of common lipstick, common drinking and eating utensils and promiscuous kissing. It will attack those with a lowered resistance, or those

who lack Vitamin C in the diet. The largest lesions occur at points on the gums that have been previously irritated, as by tartar, poor dentistry, poor hygiene and excessive cigarette-smoking.

In the subacute or chronic type of this gum disease the principal symptoms are bleeding, foul breath and a sponginess and redness of the gums. It is safe to say that in every instance of bleeding gums we have a type of Vincent's infection preceded by some form of either mechanical or chemical irritation. Mercuric, ferric, arsenical and lead poisoning lead to attack by these organisms.

I believe it would be well for the nurse to administer first aid in these cases, once the diagnosis is certain. A mouth-wash consisting of a half-teaspoonful of sodium perborate dissolved in three-quarters of a glass of warm water and used every half-hour in the acute cases is very helpful. Dental services must be instituted as soon as possible and continued until a negative smear is obtained from about the teeth.

(6) *Malocclusion or irregularity of the teeth.* This condition interferes seriously with function. This interference is in direct proportion to the amount of the irregularity. Besides the abnormal appearance of the facial expression that results therefrom, there is the predisposition to decay, to gingivitis and to pyorrhea. The early and efficient regulation of the teeth in these cases is imperative.

(7) *Foreign growths and enlargements of the soft tissues in the mouth.* While the great majority of these are benign in character, they all possess potentialities of malignancy if subject

to irritation. A cancer has its inception, as you know, in many instances in what is at first an apparently harmless and painless tumor. The opportunities for bacterial and chemical and mechanical irritation are so great in the mouth that it may easily be converted into cancer.

CONCLUSIONS

(1) Urge your patient to give scrupulous care to the teeth and mouth. The toothbrush must be used at least twice a day in the most perfect mouth. A mouth presenting abnormalities will require brushing at least five times a day. When speaking of teeth, one must think coincidentally of the gums, for they are a part of the dental apparatus and also need care.

(2) It is well to remember the normal and watch for any departures from the normal of both teeth and gums.

(3) Urge patients to replace all missing teeth and to visit the dentist regularly in order to prevent the progress of dental decay and gum infection.

(4) Be on the alert to recognize Vincent's angina or trench mouth. It frequently exists in the sick and makes them sicker.

(5) Advise immediate attention to any growth about the gums and mouth. Inspect the tongue.

(6) Learn the best method of using the toothbrush and the correct mouth-toilet.

(7) Fruits, salads, vegetables and milk, when made part of the diet, benefit the teeth and are needed to maintain health in them.

(8) Exposure to the direct rays of the sun and the following of all other

rules of general hygiene will promote health in the mouth.

Permit me to say just a word before closing regarding the temporary teeth. The same principles involving the biological laws apply to them as apply to the permanent teeth. Normal function results from normal development of the jaws. By normal function we mean the correct biting contact of the teeth when they are regular in both form and position. The most important event in the dental history of the child is the correct eruption and development of the first permanent molar. Taking its position posterior to the last of the temporary teeth at about the sixth year, it is the first and largest of the permanent teeth to erupt. There are four of them, two in the lower jaw opposing two in the upper jaw, and together they

form the keystone of the dental arches. They keep the normal space between the jaws while the remaining temporary teeth are replaced by their permanent successors. It is very important that these molars be preserved and cared for. You are in a position to drive this fact home to parents. They must not be mistaken for temporary teeth and their importance minimized. The health and efficiency of the entire dental apparatus depends upon the health of the four first permanent molars. It must be remembered also that it is essential that the temporary teeth be retained just as long as nature intended they should, for the normal position of the permanent teeth depends upon this fact.

665 Fifth Avenue, New York, N. Y.

100 Montgomery Street, Jersey City,
N. J.



[CARE IN PREPARATION OF DECIDUOUS TEETH]

Filling deciduous teeth, or dentistry for children, is operative dentistry with slight modifications. We must think in terms of dental anatomy and use greater care in cavity preparation. We cannot go deeply into these teeth, therefore, we must cut widely in order to have enough filling material to assure strength.

—GURLEY.

The Morris L. Chaim and the Benjamin Lord Prizes for 1929

The First District Dental Society of the State of New York announces a prize of \$250.00 offered by the Morris L. Chaim Fund and a prize of \$150.00 offered by the Benjamin J. Lord Fund, to be known as the Morris L. Chaim Prize and the Benjamin Lord Prize respectively. These prizes are to be awarded annually at the discretion of the Board of Directors.

Conditions:

1. *Eligibility.* Membership in good standing of any bona fide dental, medical or scientific society, or duly registered student of a recognized educational institution, prior to submission of the manuscript.
2. *Date.* Papers are to be submitted on or prior to November 1, 1929, to the Secretary of the First District Dental Society, 2 East 103rd Street, New York, N. Y.
3. *Papers.* A. The Morris L. Chaim Prize is offered for the most acceptable paper in the field of science and art as related to dentistry, which paper embodies the results of original research not previously published.

B. The Benjamin Lord Prize is offered for the most acceptable paper in the field of clinical dentistry having an immediate and direct value in its application to practical needs, which paper embodies the

results of original research not previously published.

The manuscript shall be typewritten and accompanied by all necessary photographs, drawings, diagrams and tables and shall be ready for publication.

The manuscript and all drawings, diagrams, photographs, tables, data, etc., shall be sealed in a plain wrapper or envelope which shall bear on the outside some symbol, group of letters, figures or other identification mark, and, accompanying each such sealed packet or envelope, another sealed envelope having on the outside a duplicate of such symbol, group of letters, figures or other mark, and within this sealed envelope shall be placed the name and address of the person submitting the manuscript, etc.

4. *Award.* The award shall be made by the Board of Directors of the First District Dental Society of the State of New York. At the discretion of the Board the prizes may be divided between the papers adjudged to be of equal merit, or both prizes awarded for one paper, if in the opinion of the judges it merits them.
5. *Publication.* The First District Dental Society of the State of

New York will consider the publication of the successful papers, but publication by the First District Dental Society of the State of New York shall not be binding on either party.

6. *Wherever* and whenever published, the papers awarded the prizes shall be accompanied by the statement: "Awarded the

Morris L. Chaim or the Benjamin Lord Prize, or both, in 1929, by the First District Dental Society of the State of New York."

Further information may be had by addressing: E. M. Davies, General Secretary, First District Dental Society, New York Academy of Medicine, 2 East 103rd Street, New York, N. Y.



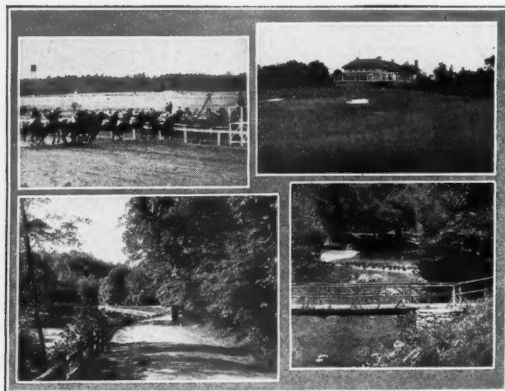
American Dental Association Meeting

October 7-11, 1929

WASHINGTON AS A VACATION CITY

Washington is the ideal vacation city of the United States. Probably more Americans visit Washington for a vacation than any other city. Its attractions are so numerous that one could pass a month there and be busy every minute. Many thousands of people from all sections of the United States

Every American hopes some day to see Washington. Its magnificent public buildings, its countless points of historic interest, its broad avenues, its beautiful parks, all present a prospect that no other city can offer. Most persons know that the City of Washington was planned by Major Pierre L'Enfant,



and from other parts of the world journey to our national capital every year, but it is in the spring and fall that the city is overrun with visitors. In October, when the American Dental Association will hold its seventy-first annual session there, the weather is ideal. The mean temperature in Washington in October in the period between 1871 and 1928 has ranged from 52° to 63°. Ordinarily the thermometer reaches 63° during that month.

a distinguished French engineer and officer in the Continental Army. L'Enfant's plan was approved by President Washington and by Thomas Jefferson, his Secretary of State. In laying out the city he had the assistance of several landscape engineers. Successive engineers and civic improvement artists have retained the principal features of L'Enfant's plan. Today Washington has 490 parks, ten large ones in the central portion, one of the largest

being the Mall, which extends from the Botanical Gardens at the foot of the Capitol to the Washington Monument. The crowning glory of the Washington Park system, however, is to be found in Rock Creek Park and the Zoological Park which adjoins. Together these parks contain 1776 acres. The natural beauty of the landscape has been preserved and hundreds of beautiful spots throughout the park are frequented by picnickers. It has been said that no other city in the country has a more lovely natural park than Rock Creek.

There are so many things to see in Washington, so many attractions, that

it is impossible to recount them all in detail. Various points of historic interest in the city and in the surrounding territory claim the visitor's attention. October is also Washington's own racing season, when during the entire month the racers can be seen at the splendid Laurel course, twenty miles from town. Here rich stakes are decided every weekday, and society can be seen at its best. This year the Laurel management has announced that a special stake will be included in the program in honor of the visiting dentists.



American Dental Association

Washington, D. C., October 7-11, 1929.

HOTEL RESERVATIONS

REVISED LIST

In securing hotel reservations for the 1929 Session, consult the hotel rate-sheet and fill out the blank application below. Mail immediately to the hotel you wish to patronize.

In case your first choice cannot be made, kindly indicate second and third choices. If none of your choices are available, the Hotel Manager will mail your application to the Chairman of the Halls and Hotels Committee and he will place your reservation in as favorable a hotel as possible.

Please remember that a reservation constitutes a contract with the hotel to provide you with the accommodations you desire. If you find it impossible to carry out your part of the contract, please write or wire the hotel so that your room may be available for others.

HOTEL	ROOMS	WITH BATH		WITHOUT BATH	
		ONE PERSON	TWO PERSONS	ONE PERSON	TWO PERSONS
BLACKSTONE	100	\$3.00-\$ 5.00	\$5.00-\$ 6.00	....	....
BURLINGTON	200	3.00- 4.00	5.00- 7.00	\$2.50	\$4.00
CAPITOL PARK	150	3.00- 4.00	4.00- 6.00	2.00 and up	3.00 and up
CARLTON	260	5.00- 7.00	8.00- 12.00	....	....
COMMODORE	154	2.50- 3.50	4.50- 6.00	....	....
CONTINENTAL	250	3.00- 4.00	5.00- 7.00	2.00- 2.50	3.00- 4.00
DRISCOLL	200	.... 3.50	.... 6.00	2.00 and up	3.00 and up
EBBITT	150	2.50- 3.00	4.00- 5.00	....	....
GRACE DODGE	300	3.00- 4.00	5.00- 8.00	2.50- 3.00	4.00- 5.00
GRAFTON	125	3.50- 6.00	5.00- 8.00	2.50- 3.50	4.00- 5.00
HARRINGTON	300	2.50- 5.00	5.00- 8.00	2.50 and up	3.50- 5.00
LAFAYETTE	200	4.00- 6.00	6.00- 8.00	....	....
MAYFLOWER	650	5.00- 10.00	7.00- 15.00	....	....
METROPOLITAN	175	.... 2.50	4.00 and up	1.50 and up	3.00 and up
POWHATAN	300	3.00- 5.00	6.00- 9.00	....	....
RALEIGH	460	4.00- 6.00	5.00- 10.00	3.00- 4.00	4.00- 6.00
WARDMAN PARK	400	.... 5.00	.... 8.00	....	....
WASHINGTON	400	5.00- 8.00	8.00- 12.00	....	....
WILLARD	475	5.00- 10.00	7.00- 15.00	....	....
WINSTON	100	2.50 and up	4.00 and up	1.50 and up	3.00 and up

MAIL THIS APPLICATION DIRECT TO THE HOTEL

HOTEL RESERVATION

AMERICAN DENTAL ASSOCIATION, WASHINGTON, D. C., OCTOBER 7-11, 1929.

.....Hotel....., 1929.
Washington, D. C.

Please reserve sleeping room accommodations as noted below:

.....room(s) with bath for.....people. Rate desired per day \$.....

.....room(s) without bath for.....people. Rate desired per day \$.....

Second choice hotel.....

Third choice hotel.....

Applicant.....Address.....

Please confirm this reservation to applicant. I further agree to notify the hotel at once in the event I am unable to use this reservation.

Important to Hotel Manager.—In the event you cannot accept this reservation, please forward this application at once to DR. R. L. MORRISON, CHAIRMAN HALLS AND HOTELS COMMITTEE, Suite 706, 1103 Vermont Avenue, N. W., Washington, D. C., who will attend to the assignment of this reservation.

DIGESTS

CONTROL OF CANCER

By FRANCIS ASHLEY FAUGHT, M.D., D.D.S.

Cancer of the mouth and tongue caused approximately 4% of the total number of cancer deaths reported. Most of the cases were in patients over 40 years of age. The detection of cancer in the mouth is the duty of the dentist.

The early signs of cancer have certain characteristics and should be easily recognized. Some of them are: hardening or induration in a small area, a warty thickening, an ulcer that does not heal promptly, and leukoplakia.

The ability to cure cancer depends on its discovery at an early stage, and the patient must give the utmost cooperation. The only effective treatment is the immediate and complete removal of the growth.

While the cause of cancer has not been determined yet, it may be stated that it is not contagious, infectious nor hereditary. It frequently occurs after chronic irritation.—*Journal of the American Dental Association*, April, 1929.

THE INCIDENCE OF SPIROCHETE AND FUSIFORM BACILLUS

By SAMUEL GREENBERG, D.D.S., and
PHILIP GREENBERG, D.D.S.

The authors state that since the spirochete is found in most inflamma-

tions in the mouth it is only natural that it is found in Vincent's infection. Also, the fusiform bacillus is microscopically indistinguishable in many of its forms and consequently the smear method is unreliable as a diagnostic method.

Furthermore, they state that in the majority of cases of primary lesions of Vincent's infection the above-mentioned organisms are entirely absent. Consequently their etiological significance is open to doubt, and other causes of the disease should be sought. The various organisms associated with the lesions should be carefully studied.—*The Dental Cosmos*, April, 1929.

NITROUS OXID-OXYGEN ANESTHESIA IN DENTISTRY

By HENRY S. RUTH, M.D.

The author states that nitrous oxid is the ideal anesthetic, because it is non-toxic, does not lower the blood pressure and has no cumulative effects. As a rule, pathological heart disorders are not aggravated when it is expertly used, and carbohydrate metabolism is only slightly interfered with.

With local anesthesia the actions and conversation of the operator must be carefully guarded, and psychic shock is a great problem. In many cases delayed healing occurs and the post-operative pain is greater.

A short time ago McKesson sent a questionnaire to the most prominent and successful exodontists in the United States. It was found that 80% of these men used nitrous oxid in 75% of their operations. Nitrous oxid was preferred by the majority for use on poor operative risks. Ninety-four per cent stated that there was less post-operative pain following nitrous oxid than after the use of local anesthesia, and 75% claimed that there was greater hemorrhage after local anesthesia.—*The Dental Cosmos*, April, 1929.

JACKET CROWN PREPARATIONS

By ALBERT LELAND LEGRO, D.D.S.

A careful examination shows that a great many preparations for jacket crowns are faultily executed and consequently it is almost impossible for the laboratory technician to turn out satisfactory work.

The shoulder should be made as narrow as possible, but this width cannot be decided upon arbitrarily. It depends on how much tooth structure is to be removed, and an x-ray examination is of great assistance. The approximal

curves of the cemento-enamel junction vary and should be carefully studied. Normally the curve follows the crest of the gingiva, approximately 1 mm. under it.

On pulpless teeth it is well to remove all the enamel, but on vital teeth as much as possible of the enamel of the gingival area should be left, consistent with the esthetics of the case. Enamel rods will not break off on vital teeth.

The dentin must be so shaped as to withstand the various stresses and prevent fracture. Half-moon fractures are generally caused by an irregularity in the surface and are often started by small checks caused by forcing the crown to place. The preparation should be examined with a magnifying glass to determine flaws and the perfection of shape.

The lingual wall of the incisal area should only diverge very slightly from the labial wall in that area and in that way it forms a resisting plane. The cervical area should present a cylindrical form. The middle area is of relatively little importance as far as the strength of the preparation is concerned.—*Dental Items of Interest*, April, 1929.

Foreign Dental Literature

Edited by JOHN JACOB POSNER, LL.B., D.D.S., New York

EARLY DIAGNOSIS IN CANCER OF THE MOUTH

By DR. O. SCHURCH, Surgical Department
of the University Clinic, Zurich,
Switzerland

The treatment of carcinoma of the

mouth, especially the tongue, has undergone a great change in the last fifteen years. Originally all cancers in the mouth came under the knife, and their removal was the most difficult and thankless task in all surgery. Practically every cancer of the tongue, unless it

was at the tip, meant an extensive and mutilating operation, often demanding the removal of the entire mandible.

X-ray therapy has improved all of this. It is now possible to carry on x-ray treatment of the growth in the mouth from without, with no injury to the skin, floor of the mouth or cheeks. The form of the tongue also permits the insertion of radium-carrying needles directly into the tumor.

To operative measures, x-ray treatment and radium there has been added diathermy, a method of destruction of the tumor through electro-coagulation.

In many instances a combination of two or three of these methods is used. The object is to destroy the growth in its entirety and do but little injury to the surrounding healthy tissues. All other methods of treatment, chemical preparations and those things which are supposed to act on the general system are either an illusion or a fraud.

It is true that in the hands of the specialist much good can be done for the patient. But it is equally important that the general practitioner or dentist who first sees the patient should make an early and correct diagnosis. The dentist should watch for and be suspicious of anything unusual in the mouth. It may save a life.

The need of early diagnosis in carcinoma of the mouth cannot be too strongly stressed. With the added means of combating carcinoma, early recognition affords a favorable prognosis in the eradication of this disease. There is no illness where early recognition is so vital.

The author describes three tragic cases where patients were shifted about with no realization of their true condition until the situation had become

almost hopeless. In one instance the patient had a swelling of the glands of the neck and was examined by two physicians. A dentist was called in and extracted a tooth. All this time a large ulcer lay beneath the tongue directly next to the extracted tooth. The patient's chance of living would have been 50% if it had been discovered sooner. This was reduced to 10% when he finally got to the clinic.

In the second case the patient visited two dentists and had several teeth removed, yet the cancerous ulcer beneath the tongue went unnoticed. Eight months elapsed from the time he first felt pain and went to the dentist until he ultimately reached the clinic. The extent of the surgical interference necessary to save this man's life included removal of all the glands of the neck and the sternocleidomastoid muscle and resection of a large part of the internal jugular vein and all the glands and tissue between the skin and the carotid artery. Roentgenotherapy, radium needles, and burning the carcinoma by diathermy were used.

In the third case the dentist once again made extractions because of pain, with the carcinoma already invading the alveolar process.

These three cases, one after the other, are offered as convincing evidence that the dentist is easily in a position to make the early diagnosis which is so invaluable in these cases. Recognition of the true condition must be made before metastasis has taken place, the lymph nodes become involved and the cancer spreads to tonsils, jaws or floor of the mouth.

At one time cancer of the tongue was a 1:18 chance; now the odds have

been reduced to 1:2. Early diagnosis is the determining factor.

Every ulcer, every thickening or induration should put the dentist on his guard. It is better to mistake a hundred harmless ulcers for carcinoma than to let a real carcinoma get by as something harmless. Harmless ulcers caused by bridgework or plates should not be allowed to escape the dentist's attention. The patient should remain under observation until full healing has taken place, as these original innocent conditions may be the forerunners of a death-dealing carcinoma.

If an ulcer is small yet suspicious, it should be totally excised and examined. It is of no value and is really dangerous to remove a small portion of such an ulcer for histological examination. In large growths a small portion may be carefully taken away and placed under the microscope.

Concluding this extremely important paper, the author says that carcinoma of the mouth diagnosed in its early stages is a curable disease. Since many of these cancerous conditions are first seen by the dentist, it is clear that he should be on the look-out and keen for the detection and recognition of early cancer.—*Schweizerische Monatsschrift für Zahnheilkunde*, February, 1929.

COMPARISON OF VARIOUS GERMICIDES IN DENTISTRY

By DR. OSKAR HEINEMANN, Rathenow, Germany

There have been many incorrect ideas concerning the value of various antiseptics used in dentistry. The author acknowledges the thorough

work in this field by Weyrauch, of the University of Jena.

In the following references, phenol is used as the control and standard of comparison.

Antiseptics that act quickly are usually those that do not continue in effect for very long. Examples of this type are the ones which work through oxidation, such as chloramin, perhydrol, hypochlorite and rivanol. These agents are effective in washing and disinfecting the hands. For this purpose chloramin is particularly useful and efficient. Tablets of chloramin may be purchased at the drug store. The hands are first scrubbed with soap and water and then dipped in a 1:200 solution of chloramin. This is better than washing with soap and water or with alcohol and bichlorid of mercury. Chloramin has an added advantage in that it lathers with soap much better than bichlorid does.

Formalin was found to be the most valuable germicide with the exception of bichlorid of mercury. Whereas substances which give off oxygen and chlorin are valuable in the cleaning of the canal, formalin is best suited for permanent placing in the canal. However, for the maximum effect a combination of the quick-acting and slow but lasting agents is the thing. Formalin-rivanol is such a combination and is warmly advocated by the writer. The bacteria are laid low by the quick decisive action of the rivanol, while the slow-moving formalin continues the good work.

As against staphylococcus, sublimate stands at 80, compared with phenol, while chloramin stands at 133. In disinfection of the hands chloramin is used

1:200, while bichlorid is diluted 1:5000. Soap increases the efficiency of all antiseptics.

Chloramin will destroy typhus bacillus as well as staphylococcus in two and a half minutes in a dilution of 1:10,000.

In disinfection of root canals phenol gave the poorest results. The maximum germicidal power was obtained with formalin-rivanol. Figuring phenol as 1, the following are some of the relative strengths of antiseptics compared with phenol:

Phenol	1
Balsam of Peru	2.4
Eugenol	1.9
Iodoform	Below 1
Chloramin	52
Cresol	2
Hydrogen peroxid	48
Methylene blue	38
Alcohol	16
Formalin	18
Formalin-rivanol	100
Rivanol	82

Even in great dilution formalin-rivanol showed up best. This preparation is particularly suited to root-canal therapy in cases with gangrenous pulps. The efficiency of alcohol as an antiseptic has been highly overrated.

Handbrushes should be kept in $\frac{1}{2}\%$ solution of chloramin. The hands are first washed with soap and scrubbed and then kept in the chloramin solution for five minutes. They are then surgically clean.

A valuable use for chloramin is in the disinfection of plates and artificial teeth or bridgework. Since it is not poisonous, it may be employed directly by the patient.

Bacteria easily clings to prosthetic appliances, and especially after colds, plates and bridges such appliances should be kept in a chloramin solution overnight to keep from reinfection.—*Correspondenz Blatt für Zahnärzte*, February, 1929.

THE PRACTICE OF ROOT AMPUTATION

By DR. HERMANN WOLF, Jaw Hospital of the University Clinic, Vienna, Austria

The author first mentions that root amputation has been known since the first half of the eighteenth century. In Austria and Germany it has been practiced for a long period, but it is in comparatively recent times that it has been adopted by England, France and America.

When to fill the root canal is a problem in root amputation. Some operators fill it before the removal of the apex, while others fill it during the operation. Where it is impossible to keep the canal dry during the filling of the canal owing to the secretions, the canal is filled at the operation. A cyst at the apex is a frequent cause of constant seepage. When it is feared that filling of the canal may give rise to acute symptoms, the procedure is to fill the canal and then go ahead immediately with the root amputation. Gutta-percha points and cement are preferred by the author for filling the canals. The canals are first moistened with the phosphoric acid, the liquid portion of the cement. This helps to attach the cement to the walls. The cement is mixed, forced into the canals, and then a gutta-percha point worked up to the apex. A plugger

is then applied and additional pressure made.

When the canal is filled during the operation, broaches are used to widen the opening, or engine drills may be used. The root-end is cut off at a slight buccolingual slant, so that the apical foramen may be seen more easily. Previous to the operation the mouth is carefully cleaned. The injection is then made. The author believes in careful surgical precautions, among them being the use of a nose-and-mouth mask for the operator and a sterile white cap. The patient, too, is protected with sterile towels, including a head cloth. The handpiece is boiled in paraffin oil.

The incision is made in an upward curve, and the flap turned downward. This is contrary to the usual procedure in America, where the curve of the incision is downward, like the bottom edge of a ten-cent piece, and the flap is held up.

The apex is exposed by using the chisel to remove part of the overlying buccal plate, and the apex is cut across with a fissure bur. The end of the root and the floor of the cavity are made flush, so that the apex does not protrude.

The flap is held in place with several sutures, and a drain of gauze is inserted in the lip of the wound.—*Zeitschrift für Stomatologie*, February, 1929.

HEREDITARY SYPHILIS OF THE MANDIBLE

By DRs. J. CHOMPRET and DECHAUME,
Oral Surgeons, Saint Louis Hospital,
Paris, France

Hereditary syphilis is of two kinds.

The first is properly so called, while the second is parasyphilitic, not a true syphilis.

In true hereditary syphilis the disease is transmitted from the parent to the offspring. This condition is relatively more frequent in the maxilla than in the mandible. The author describes two cases involving the mandible.

The false type of this disease is the transmission of various pathological symptoms to the offspring, but with no true syphilis. These conditions are inferior constitution, lack of vital resistance, and deviation in physical and intellectual development. Malformations also are common, among them being transverse flattening of the upper jaw, causing shrinkage of the lower part of the face, prognathism, and irregularity of the dental arches.

Early investigators found that syphilis left its mark on the bones of the new-born as well as the adult. The mandible was no exception to this rule. The bone diseases included periostitis, osteoperiostitis, gumma, and progressive resorption of the bone.

Hereditary syphilis can manifest itself for the first time in adult age, especially between the ages of twenty and thirty. In periostitis, pain is the usual symptom and is ordinarily preceded by the appearance of a lesion. This pain is sometimes sharp and distinct, or it may be very faint. The location of the lesion is usually in the canine or bicuspid area. The swelling which deforms the mandible is seen at this point. The external and internal plates become swollen; there is a diffuse edema running to the median line and to the angle. The floor of the mouth is raised and the teeth are loosened.

The skin and mucous membrane are normal. The patient loses considerable weight and is depressed.

Osteoperiostitis usually becomes suppurative and complicated by necrosis. A true abscess forms beneath the periosteum, which opens, draining the pus and forming a fistula that lasts for months.

Bony destruction is always limited, circumscribed and superficial. Osteoperiostitis may invade the entire bone, while necrosis is limited to the superficial lamellae.

Complications which may arise from loss of bone structure include spontaneous fractures. Syphilis simulates many of the common inflammations, as well as tubercular conditions. It is therefore necessary in all cases of doubt to question the patient and his parents closely, to look for other lesions, to demand a Wassermann test, and to make one test treatment. The discovery of bone necrosis is a suspicious sign, and the dentist should always be on his guard.—*La Revue de Stomatologie*, No. 11.



[CANCER]

Until science has found the real cause, and uncovered the biologic laws that govern the origin and growth of cancer, we must content ourselves with our efforts to remove any and all things that we know to be contributing causes, together with the very early recognition and treatment of the disease once it has made its appearance.

—RASMUSSEN.

PRACTICAL HINTS

THIS DEPARTMENT IS NOW BEING CONDUCTED FROM THE OFFICE OF THE DENTAL DIGEST. TO AVOID UNNECESSARY DELAYS, HINTS, QUESTIONS AND ANSWERS SHOULD BE ADDRESSED TO EDITOR PRACTICAL HINTS, THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

METALLIC TASTE FROM DENTURES.

—I notice in the January edition of THE DENTAL DIGEST a letter about upper and lower dentures worn by a male patient, 55 years old, who when he wears his upper denture complains of a metallic taste, something similar to that of nitrate of silver.

I suggest it might occur from the mercurial content in certain vulcanite. I believe dark elastic is most suitable, or an aluminum lining ought to correct the difficulty.

C. T. C.

Editor, Practical Hints:

I have a patient for whom I made a full upper and lower set of teeth. They hurt his mouth so badly that he could not wear them. The lower seem to be the worse.

I reset them and lined the lowers with soft rubber, and still he cannot wear them. Can you tell me what to do?

What will toughen his gums so that he can wear them?

O. B. S.

ANSWER.—It very frequently happens that, after extraction, and when the process has not been trimmed back

beyond the necrotic area, there is a progressive resorption of the ridge that leaves it so thin that there is almost always tenderness to the slightest pressure. This is especially true in cases of pyorrhea. An x-ray will show the true condition of the process.

Editor, Practical Hints:

I am using an all-glass syringe and an iridio-platinum needle for mandibular block anesthesia and am having a great deal of trouble with the plunger sticking in the barrel. Today I broke a syringe in an effort to loosen the plunger, after boiling in a solution of glycerin and water.

My care of the syringe is as follows: After using, draw the alcohol through the needle and syringe and discard the alcohol to wash out salts of anesthetic solution. Remove the needle and plunger and place all in a clean tray. Before using, boil the syringe and needle ten minutes, draw fresh sterile solution into the syringe, replace the needle, flame it and inject. The sticking occurs after the boiling.

Please criticize my method and offer what you consider better.

L. T. A.

ANSWER.—There can be no criticism of your technic. With a glass syringe, the plunger and the barrel are supposed to have the same coefficient of expansion. If this is not the case, then the plunger will bind when it is heated during sterilization. It might help to wait until the syringe is thoroughly cool before using it, though this would take considerable time.

We have always found an all-metal syringe to be perfectly satisfactory and have never had any trouble from sticking.

Editor, Practical Hints:

Should curetting of sockets be resorted to after extraction? I have in mind especially those sockets where a sac or part of one is suspected in the upper molars in close relation to the antrum.

Some men seem to think that this is a dangerous procedure, and that by doing so one is adding insult to injury and very apt to infect the antrum. These same men seem to think that nature, if given a chance, will cause the sac to be absorbed.

Will you please let me know the consensus of opinion on this vital subject?

R. A.

ANSWER.—Routine curettage after extraction is to be condemned, since it may do a great deal of harm by spreading infection. Furthermore, when it is resorted to, it should not be done blindly. The operator must see what he is doing, otherwise he cannot know that the curette has reached all parts of the area.

The chances are very much against

the absorption of a sac, and it would be better to remove it, even if it is in close proximity to the antrum.

Editor, Practical Hints:

I wish to ask what you consider the best bleaching agent and the process for restoring two superior centrals to their former color.

These teeth became discolored from a blow, and, as the case is of a young lady 18 years old and the teeth are of a rather peculiar shape, I wish they could be lightened somewhat, if not to the exact shade.

L. H. B.

ANSWER.—Pyrozone, a 25% ethereal solution of hydrogen dioxide, is a powerful bleaching agent. Ream out part of the canal, cutting away also part of the discolored dentin. Fill the pulp chamber and part of the canal with loose, dry cotton and seal in thoroughly with gutta-percha. Drill a small hole in the center of the gutta-percha, then with long-pointed pliers carry sufficient pyrozone through the opening to moisten the cotton. Seal the stopping with a hot spatula and make sure that there are no leaks. This operation must be performed with the rubber dam in place.

The pyrozone is left for a varying length of time, depending on the quickness of the action, and may have to be repeated. Some cases do not respond to treatment and return to their former color after a short time. If this should happen, you might place jacket crowns on the teeth.

Editor, Practical Hints:

I made an upper plate for a patient.

It fits well, but he gags so with it in his mouth that he refuses to wear it.

I understand that the proper thing to do in a case of this kind is to extend the plate further back. Kindly let me know the best way to do this without making it over.

H. J. H.

ANSWER.—You will find in the end that it will be more satisfactory and less trouble to make the plate over, marking on the impression the exact area to be covered. It might also be well to postdam the denture.

Editor, Practical Hints:

What form of bridge would you use to replace a lower second bicuspid in a boy 18 years old? His six-year molar was extracted some years ago, and the second molar has moved pretty well into its place.

H. J. H.

ANSWER.—A very good method of supplying a second bicuspid is a fixed bridge having for anchorage a D. O. inlay in the first bicuspid and an M. O. inlay in the molar. The inlays should be of hard alloy to withstand the strain.

Editor, Practical Hints:

A patient presented, complaining of pain in the region of the apex of the upper central incisor. Both central and lateral held beautifully constructed inlays. An x-ray examination showed a devitalized lateral. Infection was present at the apex of both central and lateral, the central not having been treated.

I extracted both teeth and curetted

the sockets. Later a bridge was placed. This was two years ago.

The patient still complains of pain in the same area. At times there is little or no pain, then it returns for a few days. It is not intense, yet it is annoying and shoots up past the nose to the forehead. There is no swelling and the tissue has a normal appearance, still the pain is there.

F. F. J.

ANSWER.—The x-ray does not show a great deal of detail, but as far as can be seen the area under the bridge seems to be in very good condition.

It would be best to examine the anterior teeth for traumatic occlusion, not only in centric occlusion but also during the lateral excursions. This may be the cause of the trouble.

Editor, Practical Hints:

(1) What are the symptoms of pericoronal infection of the lower third molars?

(2) Is pericoronal infection *always* accompanied by trismus?

(3) If a patient suffers from pain in a lower third molar which has a very deep cavity and he can open his mouth very wide without discomfort, would you advise conductive anesthesia?

T. M. T.

ANSWER.—(1) The symptoms of a pericoronal infection are identical with those of any acute infection.

(2) Trismus is not always present, though it generally occurs in a greater or less degree.

(3) It would be best to be guided by the extent of the inflammation present.

Editor, Practical Hints:

I should appreciate information regarding a case of mine. The patient, a man, 45 years old, is anxious to save his teeth at any cost. The lower anteriors are eaten away on the labial in saucer shape and close to the pulp by chemical erosion, due, I think, to the fact that he chews gum and cough tablets constantly. The upper anteriors and bicuspid are the same. The lingual and the occlusal pits of these teeth are all right. The lower left cuspid canal is obliterated, with swelling and soreness present.

Would you advise gold inlays, porcelain fillings, or what?

W. B. W.

ANSWER.—It would be advisable to fill the eroded areas with inlays. A better adaptation will be secured by using gold, but if the color is objectionable, the porcelain will have to be used.

Whether or not to extract the lower cuspid will depend a great deal on the cause of the swelling and soreness.



[EXTRACTIONS SHOULD BE ASEPTIC]

It is obvious that antiseptic postoperative treatment is indicated if aseptic surgery is not practiced, but it is hoped that the time is not far distant when, by the help of dental colleagues and teachers of graduate students in this specialty, the extraction of teeth will be placed on a plane with general surgery.

—GARDNER.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce,
care of THE DENTAL DIGEST, 220 West 42d Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-
SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT
LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE
OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE
DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK.
YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST
BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP
DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE.
OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—
SHE'LL HELP YOU.

Dear Miss Pierce:

I wonder if you can tell me of a cleanser to remove the iron stain on a porcelain cuspidor. We have tried a number of household cleansers with no results.

Many thanks for any hint you may give us. I look forward each month to THE DENTAL DIGEST and your column.

O. M. B., Conn.

ANSWER.—Make a strong solution of oxalic acid and apply with a small stiff brush to the stained spots. A discarded mucilage-bottle brush makes an ideal applicator. Be sure to wash off all traces of the acid when stains have disappeared and not to allow any of the acid to drop on the metal parts of the equipment or on your clothing or hands.

We are always glad to hear that our department is interesting and of value.

suggestions to Dr. O. H. B., Las Cruces, N. M., regarding hypodermic syringe needles:

I think that the use of the antiquated steel needle is well-nigh passé, therefore I urge Dr. B. to equip himself with two 30% iridio-platinum needles. After using, dismount the needle and hub and sterilize with the syringe. With proper care and with an iridio-platinum needle with heavy walls and small bore he can use it as long as he wishes and will not need to throw them away so often. They do not rust and the use of a steel needle is poor economy. No wire need be inserted, and if they stop up, just burn out the "stopper." (Dr. B. indicates his use of a steel needle by his word *rust*.)

I have used two 30% iridio-platinum needles for more than 3,000 injections, and one is still good.

Dr. M. F. B., El Paso, Texas.

Dear Miss Pierce:

I should like to offer the following

Dear Miss Pierce:

Please tell me how to remove from

the hands the green stains caused by copper sulphate.

I. M. C., Col.

ANSWER.—We suggest that you try a weak solution of oxalic acid. Remove all trace of the acid by careful rinsing and apply a good skin emollient, cold cream or almond cream, to assist in keeping the tissues from being irritated. We suggest further that, when using any medicaments or chemicals, the hands be protected with rubber gloves and thus unnecessary discolorations may be avoided.

Dear Miss Pierce:

I remember reading some time ago in your very helpful and interesting column something about spots and stains on x-ray films when developed. Unfortunately I did not cut out this question and answer and now I cannot find the issue in which they were published. Please be kind enough to let me know how I can keep the films from being streaked and spotted.

C. B., Ind.

ANSWER.—There are various reasons for "streaks and spots" on films, and there are various kinds of "streaks and spots."

Bubbles which appear as small white spots may be caused by films failing to be properly submerged in the developing solution. If they are developed on a rack, the rack should be moved up and down in the solution several times when first immersed; if trays are used, the films should be moved about in the solution by shaking the tray. In using trays, be sure that the shiny side of the film is next to the tray bottom, for if the emulsion side is placed next to the

bottom of the tray, it is apt to stick and cause a whitish stain or streak.

Streaking or fogging may be caused by the developing solution being either too hot or too cold. This is usually grayish or whitish in appearance. Keep your solutions as near 65° as possible. If you have a yellowish streaking, this may be because the developer is too old or you have left the films in the solution too long. This stain sometimes takes on a greenish luster. This can also be caused through the fixing solution becoming weakened in acid content and will be caused if you allow any of the developer to get into the fixing bath. Fresh solutions kept at an even temperature of 65°, clean trays and containers, and careful rinsing of films before placing in fixing bath should eliminate your troubles.

Dear Miss Pierce:

Please tell me if there is a law preventing dental assistants from wearing caps. I wear a cap; in fact, I am the only assistant in our town who does, and one of the other assistants told me I could not wear a cap legally. I might say that there are only seven assistants in our town and eighteen dentists, and that I am the only girl who wears white shoes and hose. Some of the other girls wear white shoes and colored hose, and some colored shoes and hose. What do you think about this kind of mixture?

J. R., Mich.

ANSWER.—We know of no law preventing dental assistants or any one else from wearing a cap. Caps are for sale in any department store which sells uniforms. The wearing of a cap seems to be one of individual preference by

both the assistant and her employer. There can be no question that a white uniform throughout adds to the dignity and appearance of the assistant and also of the dental office. White shoes and hose are the proper complement to the white uniform and should be worn with it for a perfect ensemble. We compliment you on your "dressing the part" for your calling.

MONTREAL DENTAL ASSISTANTS ASSOCIATION

The annual meeting of the Montreal Dental Assistants Association was held in April at the new Medical Building, McGill University, with Miss Esther Moye, President, in the chair. Various reports were read and adopted and showed considerable progress in the work of the Association.

Dr. D. P. Mowry, President of the Dental Surgeons of the Province of Quebec, was the guest-speaker of the evening. His topic was *Inspirational Talk*. He pointed out the important rôle that the dental assistant plays in giving tone to a dental office and congratulated the society for its efforts. He exhorted his hearers to enjoy the task before them, saying that the position of the dental assistant is a great training ground for any future undertakings.

Election of officers resulted as follows: Esther Moye, President; Mabel Power, First Vice-President; Mrs. McKenna, Second Vice-President; Elsie Voysey, Corresponding Secretary; E. Howden, D.N., Recording Secretary; Mary McLean, Honorary Treasurer; Grace Robinson, Treasurer; Alain French, Secretary; Rachel Ratner, Chairman of Publicity.



EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

Today is the tomorrow you worried about yesterday—and all is well.

(Friend)—I heard your little boy was lost.
(Mother)—We thought so for a while, but we found him under the Sunday paper.

Did you ever hear of the Scotchman who sued a ball park's owners because he was hurt watching a game? He fell out of a tree.

In London a Society has been incorporated to aid wealthy persons in distributing their funds. In America such an organization is known as a night club.

ART ENTHUSIASM

She had a vast amount of money, but it had come to her quite recently. One day an acquaintance asked her if she was fond of art. "Fond of art!" she exclaimed. "Well, I should say I was! If I am ever in a city where there's an artery I never fail to visit it."

Little Tommy was asked by his teacher if he could repeat the proverb that was mentioned in yesterday's lesson, and he rattled it off this way: "How sharper than a serpent's thanks it is to have a toothless child."

Very few people know how the Grand Canyon of the Colorado River was formed. A Scotchman who happened to be passing through that region when it was a nice level cherry orchard, accidentally dropped a nickel into a gopher hole, and you can observe now what happened in his effort to recover the nickel.

(Judge)—Well, officer, what's the charge against the prisoner?

(Officer)—He laughed so uproariously in a theatre that he disturbed all the people in the house.

(Prisoner)—Yer honor, I works in a coffin factory, an' I has to do all my laughin' at night.

(Judge)—Case dismissed.

A little actress is a dangerous thing.

A bachelor is a man who doesn't want to make the same mistake once.

A "COME BACK" PRESENT

A Scotchman was puzzled in trying to determine on a wedding present for a dear friend who was about to be married. He finally decided to send him a couple of homing pigeons.

THE MUM FAMILY

There is a funny family,
Of which I often hear,
In which the difference in size
To me seems very queer.
The family, I judge, is small—
Two seems to be the sum—
And Minnie Mum the one is called,
The other, Max I. Mum.

Now Minnie Mum is always shown,
To be exceeding small,
While Max I. Mum a giant is,
So very large and tall.
But hand in hand they march about
As fond as fond can be,
And proud they are to let the world
Their striking contrast see.

AN ITEM FOR YOUR SCRAPBOOK

1 times 9 plus 2 equals 11.
12 times 9 plus 3 equals 111.
123 times 9 plus 4 equals 1111.
1234 times 9 plus 5 equals 11111.
12345 times 9 plus 6 equals 111111.
123456 times 9 plus 7 equals 1111111.
1234567 times 9 plus 8 equals 11111111.
12345678 times 9 plus 9 equals 111111111.
1 times 8 plus 1 equals 9.
12 times 8 plus 2 equals 98.
123 times 8 plus 3 equals 987.
1234 times 8 plus 4 equals 9876.
12345 times 8 plus 5 equals 98765.
123456 times 8 plus 6 equals 987654.
1234567 times 8 plus 7 equals 9876543.
12345678 times 8 plus 8 equals 98765432.
123456789 times 8 plus 9 equals 987654321.

(Son)—Say, Dad, what's a chafing-dish party?
(Dad)—Well, son, it's something like a mixed-ale party, only when it's over they send for the doctor instead of the police.

HOW HE FOUND THE MULE

Joblots was telling his friend the big scare he got the day he lost his mule. "But," he said, "I found him again inside of an hour. It was this way: I just thought where would I go if I was a mule? So I went there—and there he was!"

A traveler in Scotland observing an old couple arguing and gesticulating wildly in the roadway, asked the cause of the dispute. "We're no dees-putin' at all," answered the man; "we'er baith o' the same mind. I hae got a half crown in my pooch, and she thinks she's no goin' to get it—an' I think the same."

FUTURE EVENTS

THE FLORIDA STATE BOARD OF DENTAL EXAMINERS will hold its annual meeting on June 6-8, 1929, at Jacksonville, for the purpose of examining all qualified applicants for license to practice dentistry and dental hygiene in the State of Florida.

For information and application blanks, write to

R. P. TAYLOR, *Sec'y*,
414 St. James Bldg., Jacksonville, Fla.

THE NORTHEASTERN MASSACHUSETTS DENTAL SOCIETY will again convene at the New Ocean House, Swampscott, Mass., June 10-12, 1929.

For further particulars, address

HENRY I. YALE, *Secy.*,
Peabody, Mass.

THE MASSACHUSETTS BOARD OF DENTAL EXAMINERS will hold an examination for registration for both dentists and oral hygienists in the City of Boston, Mass., June 11-15, 1929.

All applications must be filed at the office of the Secretary at least ten days before date set for examination.

Full information, application blanks, etc., may be secured at the office of the Secretary, Room 146, State House, Boston.

THE INDIANA STATE BOARD OF DENTAL EXAMINERS will meet in the House of Representatives Room, State House, Indianapolis, Ind., at 8:00 A. M., June 17, 1929, for the purpose of examining all applicants with proper credentials. All applications should be in the hands of the Secretary one week before the meeting.

For applications, clinical requirements and other information, address

J. M. HALE, *Secy.-Treas.*,
Mount Vernon, Ind.

THE BOARD OF DENTAL EXAMINERS OF THE DISTRICT OF COLUMBIA will hold its next meeting for the examination of dentists and dental hygienists during the week beginning June 17, 1929, at the Georgetown Dental School, 920 H Street, N.W., Washing-

ton, D. C. For application blanks and instructions, address

C. WILLARD CAMALIER, *Sec'y-Treas.*,
406 Medical Science Bldg.,
Washington, D. C.

The seventy-third annual meeting of the MICHIGAN STATE DENTAL SOCIETY will be held on board the S.S. Noronic, leaving Detroit on June 18, 1929. A three-day cruise through the chain of Great Lakes offers an unusual and novel convention. Visits to the "Soo," Mackinac Island and Lake Superior are included in the itinerary.

Justin D. Towner, of Memphis, Tennessee; William J. Gies, of New York; DeForest Davis, of Cleveland, Ohio; E. L. Ball, of Cincinnati, Ohio, and Howard H. Jackson, of Detroit, will give papers.

James V. Gentilly and James A. Loughry, of Cleveland, Ohio; Carlos H. Schott, of Cincinnati, Ohio, and William A. Giffen, of Detroit, will give lecture clinics.

Several group clinics by Study Clubs from Detroit and Michigan will add their quota to the program.

Provision has been made to accommodate members of the profession from other states and their wives.

The Noronic leaves Detroit at 9:30 A. M. on Tuesday, June 18, and returns to Detroit on Friday morning, June 21. We extend a cordial invitation to all members of the American Dental Association and the Canadian Dental Association and their wives to join us.

Reservations may be made by addressing

DR. WM. F. NORTHRUP,
1102 Stroh Bldg., Detroit, Mich.

THE MINNESOTA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting on June 18, 1929, at the College of Dentistry, University of Minnesota, Minneapolis. Application blanks may be obtained from the Secretary and must be filed with him not later than June 10th.

F. E. COBB, *Sec'y.*,
601 Donaldson Bldg., Minneapolis, Minn.

THE DELAWARE STATE BOARD OF DENTAL EXAMINERS will hold its next meeting at the Municipal Bldg., Tenth and King

Streets, Wilmington, Del., from 9:00 A. M. to 5:00 P. M., June 19-20, 1929.

For further information, address

W. S. P. COMBS, *Sec'y*,
Middletown, Del.

THE MAINE DENTAL SOCIETY will hold its annual meeting at the Poland Spring House, South Poland, Me., June 20-22, 1929.

W. F. FOGG, *Secy.*,
168 Main St.,
Yarmouth, Me.

THE OKLAHOMA STATE BOARD OF DENTAL EXAMINERS will hold its next regular meeting at the State Capitol Bldg., Oklahoma City, Okla., June 24, 1929. For application blanks, address

E. E. SANGER,
Yukon, Okla.

THE ARKANSAS STATE BOARD OF DENTAL EXAMINERS will meet at the Marion Hotel, Little Rock, Ark., on Monday, June 24, 1929, at 8:00 A. M., for the purpose of examining all applicants possessing the proper credentials.

Applications should be in the hands of the Secretary at least one week before the meeting. For application blanks, clinical requirements, etc., address

FLOYD P. TRAVIS, *Sec'y*,
Osceola, Ark.

THE CONNECTICUT DENTAL COMMISSION will meet at Hartford, Conn., June 27-29, 1929, to examine applicants for license to practice dentistry and dental hygiene and to transact any other business proper to come before them.

For further information, apply to

ARTHUR B. HOLMES, *Recorder*,
80 Central Ave., Waterbury, Conn.

THE WYOMING STATE DENTAL ASSOCIATION will hold its annual meeting in Cheyenne, Wyo., June 28-29, 1929.

E. C. ANDREW, *Sec'y*,
Cheyenne, Wyo.

PLEASE NOTE CHANGE OF DATES

The fourth annual summer session of POST-GRADUATE STUDY FOR DENTAL HYGIENISTS will open at State Teachers College, Buffalo, N. Y., on July 1, 1929, and will continue through August 9th. While this course is designed primarily for those wishing to qualify as a Dental Hygiene Teacher in the

State of New York, the work presented should prove of value to any dental hygienist in her contact with the public.

A parallel course for school nurses will be given also. These courses have been approved by the State Education Department as meeting the requirements for certification as a Dental Hygiene Teacher and School Nurse Teacher.

Tuition is free to residents of New York State, and a nominal charge is made to non-residents. Living expenses approximate from \$10.00 to \$15.00 per week. Classes are held five days a week.

Complete announcement of the courses and applications for admission will be sent on request by

DR. S. R. MEAKER, *Supervisor of Oral Hygiene*,
State Education Department, Albany, N. Y.

THE PACIFIC COAST DENTAL CONFERENCE, consisting of British Columbia, Washington, Oregon, Idaho, Utah, Nevada, Southern California and California State Associations, will hold its second triennial meeting in San Francisco, Cal., July 8-12, 1929. All members of the American Dental Association are cordially invited.

Further information may be had from

F. T. WEST, *Secretary*,
2180 Washington St., San Francisco, Cal.

EXAMINATION FOR APPOINTMENT TO DENTAL CORPS OF U. S. NAVY

A competitive examination for appointment to the Dental Corps of the United States Navy will begin July 8, 1929, at the U. S. Naval Medical School, Washington, D. C. Candidates must be citizens of the United States, between 21 and 32 years of age at the time of appointment, and graduates of recognized dental schools. The examination will be both theoretical and clinical, and the usual duration is about seven days. A circular containing full information relative to the Dental Corps and the prescribed form of application may be obtained from the Bureau of Medicine and Surgery, Navy Department, Washington, D. C. No allowance is made for the expense of applicants appearing for examination.

C. E. RIGGS,
Surgeon-General, U. S. Navy.

THE MONTANA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting at Helena, Mont., July 8-12, 1929.

For further information, address

T. P. REGAN, *Sec'y*,
Helena, Mont.

THE NORTH DAKOTA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting at the Gardner Hotel, Fargo, N. D., July 9-12, 1929. All applications must be in the hands of the Secretary by June 30th.

GILBERT MOSKAU, *Sec'y*,
Northwestern National Bank Bldg.
Grand Forks, N. D.

THE AMERICAN SOCIETY OF ORTHODONTISTS will hold its annual meeting in Estes Park, Colorado, July 15-19, 1929. All ethical dentists are invited. A registration fee will be charged to non-members.

Hotels are Stanley (headquarters), The Craggs, Lewiston and Elkhorn Lodge. For hotel information, write to Dr. Fred W. Beesley, Republic Bldg., Denver, Colo. Regarding transportation, write to Dr. Kirman E. Taylor, Mack Bldg., Denver, Colo.

ALBERT H. KETCHAM, D.D.S., *President*,
1232 Republic Bldg., Denver, Colo.

CHARLES R. BAKER, D.D.S., *Secretary*,
708 Church St., Evanston, Ill.

THE ARIZONA BOARD OF DENTAL ENGINEERS will hold its next meeting at Flagstaff, Arizona, beginning July 29, 1929.

For further information and application blanks, address

EUGENE MCGUIRE, *Secretary*,
420 Security Building,
Phoenix, Arizona.

THE A. D. A. MEETING to be held in Washington, October 7 to 11, 1929, will surely be a treat for those who can attend. Make reservations as soon as possible. You will never regret being present at this greatest of all meetings.

THE FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its Fifth Annual December Meeting for Better Dentistry at the Hotel Pennsylvania, New York, December 10-14, 1929.

The officers of the Society have made arrangements to continue the meetings on the same plan as heretofore, and expect that the profession will again support them in making this meeting a success.



